El Dorado County, CA

Bioeconomy Development Opportunity Zone

Rating Grade: 'A'

Date of Issue: August 19, 2025

A
High Quality

Rating Parameters:

Category	Rated Quantity	Delivered Price	Supply Zone Size
Pulpwood	**64,300 bdt/yr**	**$75-$95/bdt**	**75-mi drive distance**
Forest Residues	**41,700 bdt/yr**	**$80-$100/bdt**	**from Camino, CA**

BDO Zone Assets

- A strong vision to develop a community bioeconomy to utilize biomass from regional forest restoration and fire remediation activities.
- Little to no competition for surplus Pulpwood and Forest Residues in the BDO Zone.
- Extensive local experience implementing forest restoration and wildfire risk reduction programs.
- Logging, grinding, and transportation equipment capacity able to sustain the rated biomass quantities.
- Established infrastructure for a potential biomass project development at a former sawmill site.

BDO Zone Liabilities

- Biomass quality and quantity fluctuations arising from forest restoration, salvage, and wildfire mitigation activities.
- Road infrastructure challenges, especially in National Forests and steep terrains.
- Strong dependency of non-timber forestry objectives, such as wildfire mitigation and ecological restoration, on government subsidies.

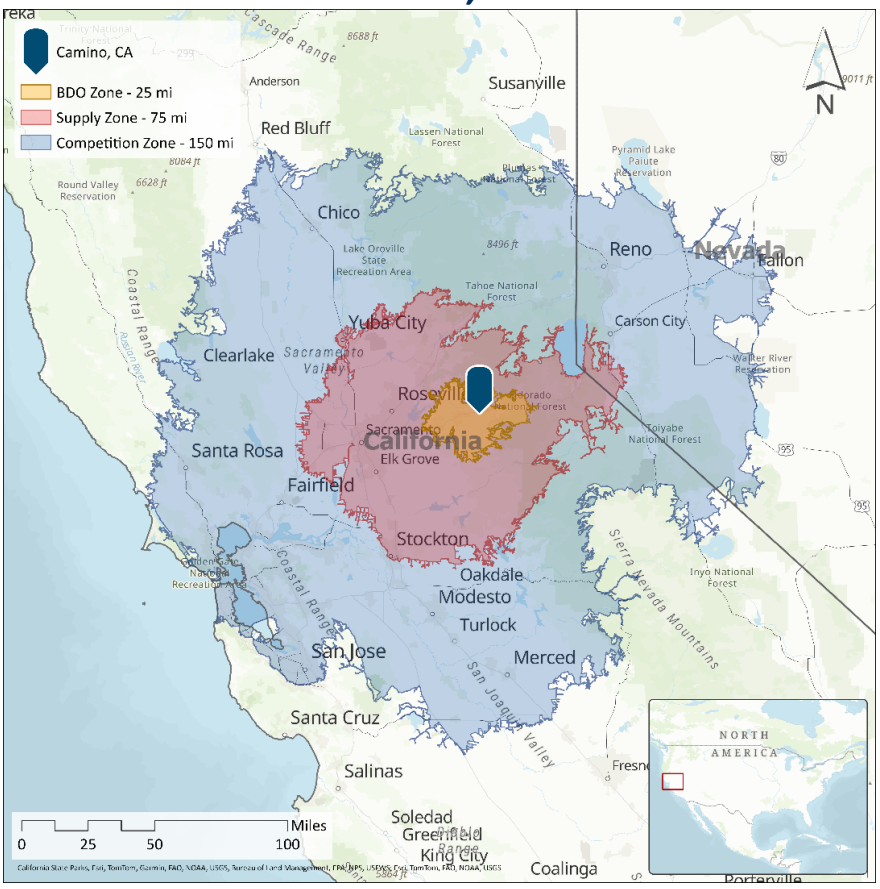
Rating Grade

The El Dorado, CA Bioeconomy Development Opportunity (BDO) Zone, is rated 'A', or 'low' risk.

Risk Rating Grades are defined as follows: AAA (extremely low risk), AA (very low risk), A (low risk), BBB (low-moderate risk), BB (moderate risk), B (moderate high risk), and C (high risk).

'A' ratings denote high prospective viability of Feedstock Supply and Infrastructure and low expectations of default risk in the Zone. Capacity to support new biobased plant operations is considered strong. This capacity may, nevertheless, be vulnerable to supply chain scale-up and feedstock quality challenges than is the case for higher ratings.

El Dorado County, CA BDO Zone



ANALYST NOTES

The Supply Zone spreads over twelve counties in California and one county in Nevada. Approximately 40% of the surface area of the Supply Zone is forested. Softwood species constitute 90% of the standing tree volume, primarily White fir (25%), Douglas fir (16%), and Ponderosa pine (14%). Hardwood species, mostly oak, constitute the remaining 10% of standing tree volumes.

High tree mortality rates have impacted the timber inventory, with total standing merchantable timber volume decreasing by 8% and small-diameter/Pulpwood timber volume declining by 13% between 2016 and 2021. A new biomass project would create an opportunity to increase salvaging this biomass.

Despite the high mortality rates, the forest stands in the Supply Zone exhibit substantial annual net growth, of which only one third is being harvested. This indicates an opportunity to more than double the sustainable timber harvest and biomass availability in the Supply Zone. While public ownership accounts for 71% of standing timber, 59% of commercial harvests take place in private forestlands.

One sawmill, a pellet mill, two combined heat and power operations, and four biomass power plants are located within a 150-mile drive distance from Camino. Despite the closure of a pellet mill in 2021, two new pellet mills are expected to commence operations within the next two years. However, their proximity to and association with existing sawmills will not likely affect the availability of Pulpwood and Forest Residues to a biomass project located in Camino.

In the past decade, several mill curtailments and closures occurred due to merchantable fiber scarcity, resulting from reduced federal funding, insect infestations, and forest fires. Salvage and forest restoration treatments have supplemented the local timber supply, but at higher costs than commercial harvesting operations.

Our supply and demand analysis indicated that a biomass project in the El Dorado BDO Zone could access 64,300 bdt/yr of Pulpwood and 41,700 bdt/yr of Forest Residues, at delivered price ranges of $75-$95/bdt for Pulpwood and $80-$100/bdt for Forest Residues.

BDO ZONE ASSETS

The rating is issued on the overall assumption that a small-scale bio-economy (e.g., bioenergy/biofuel and value-added manufacturing) will be developed in Camino, CA that relies of the increased forest restoration and fire remediation activities already mandated by federal and state regulators. Strong support for this project exists and a rejuvenation of the local forest industry in the BDO Zone is foreseen by both the client and regional development organizations.

There is currently no competition for the rated quantities of Pulpwood and Forest Residues generated in the Supply Zone. A substantial volume of this biomass is currently piled and burned or masticated and left on site. Locating a biomass project in Camino, CA will have a competitive advantage to secure these quantities.

Programs that integrate wildfire risk reduction with sustainable biomass utilization have been employed in the BDO Zone, and the local forestry workforce is familiar with them. These activities provide an environmentally beneficial opportunity to convert biomass into bioenergy or biofuels, while reducing air pollution and fire hazard in a region facing a high wildfire risk.

Outreach indicated that the logging and grinding equipment capacity in the region is capable of meeting the rated biomass quantities. Most operators maintain modern mechanized forestry equipment, including harvesters, skidders, processors, and loaders, with high-productivity grinding equipment also present. This existing infrastructure supports efficient biomass recovery and processing.

The opportunity to locate a biomass project at the former sawmill site in Camino also provides significant advantages. The site offers essential services, ample expansion room, and existing infrastructure that reduces development costs and timeline uncertainties. Additionally, the site history of industrial use minimizes potential permitting complications compared to a greenfield development.

BDO ZONE LIABILITIES

Biomass quality and quantity fluctuations arising from forest restoration, salvage, and wildfire mitigation activities present operational challenges. This variability

complicates securing consistent year-round feedstock streams, potentially jeopardizing facility economics and production reliability. Rigorous quality control and optimal logistics are needed to secure a consistent feedstock quality to multiple product streams.

Challenging forest road networks exist in some areas, particularly within the El Dorado National Forest. Biomass transport faces seasonal challenges from snow and ice in mountain regions, potentially disrupting delivery schedules to processing facilities. Additionally, accessing salvaged biomass will require construction of new roads, necessitating increased public funding. While these infrastructure limitations present meaningful challenges, the assessment indicates that the majority of the road infrastructure remains appropriate for biomass transportation.

INFRASTRUCTURE PROFILE

The 177-acre former Sierra Pacific Industries sawmill site in Camino offers essential infrastructure while presenting some specific challenges for potential development. The property maintains industrial zoning across 13 parcels with all utilities available, including water and propane. Limited electric power availability necessitates a substation upgrade to support sustainable three-phase power, potentially increasing upfront capital investment.

Strategically located less than a mile from US Highway 50, the site benefits from strong transportation access, facilitating direct trucking routes throughout California and the western U.S. Rail services are available within 50 miles of the site, supporting intermodal logistics with connections to major operators including Union Pacific and BNSF.

Utility and labor costs in El Dorado County (and California) exceed national averages, with local minimum wages surpassing federal standards. Elevated living costs, particularly in housing, may hinder workforce recruitment and retention, especially for lower-wage positions. These conditions may increase operational expenses, necessitating strategic workforce and compensation planning from potential investors.

SCORING & RATING METHODOLOGY

In assessing the biomass supply chain risk for the Bioeconomy Development Opportunity (BDO) Zone, 88 Risk Indicators from the US Standards for Biomass Supply Chain Risk (BSCR) were applied. These BDO Zone Risk Indicators are the subset of BSCR Risk Indicators applicable to evaluating feedstock risk within a BDO Zone. The risk indicators include:

- Twenty physical and social infrastructure risks were assessed for an industrial park located in the BDO Zone. The BDO Zone is a 25-mile drive distance from the center point, which represents the siting area for future biomass projects and is where the industrial site is located.
- Ten supplier risks, 46 supply chain risks, and two feedstock scale-up risks were assessed in the Supply Zone. The Supply Zone is a 75-mile drive distance from the center point, where biomass availability was assessed.
- Ten competition risks were evaluated in the Competition Zone. The Competition Zone is a 150-mile drive from the center point, where consumers can compete for biomass generated in the Supply Zone.

Feedstock quantities are expressed in **bone dry tons per year (bdt/yr)**, while feedstock costs are expressed in **USD ($)**. Maximum transport distance is based on a 75-mile driving distance from the center point.

The BDO Zone rating is based on an aggregation of the scores assigned to each BDO Zone Risk Indicator (RI) assessed in this report. First, each BDO Zone Risk Indicator is given a **Raw Risk Likelihood (RRL)** score, which denotes the likelihood of a risk to future BDO Zone projects due to the Risk Indicator. RRL Scores are scaled as either very low (2), low (4), medium (6), high (8), or very high (10).

Each BDO Zone Risk Indicator is given a **Raw Risk Impact (RRI)** score, which denotes the impact on a future BDO Zone project due to the Risk Indicator. RRI scores are scaled as either very low (2), low (4), medium (6), high (8), or very high (10). Impact level scores are based on the impact level of a risk on the successful development and deployment of a BDO Zone project with no mitigation measures.

The **Gross Risk Indicator (GRI)** score is then calculated as the product of the RRL and the RRI scores. For example, if the 'Competitor Price and Price Sensitivity' is scored at an RRL of 2 and an RRI of 8, then the GRI for this risk indicator is 2 X 8 = 16.

If the analyst deems that a typical bio-based project could implement economically reasonable measures or best practices that mitigate the likelihood (RRL), the impact (RRI), or both, then the GRI will be notched accordingly.

The **Loaded RI** score for each Risk Indicator is the product of the GRI score and any notched scores. Loaded RIs are the final score for a Risk Indicator.

Loaded RI scores of 4 or less are deemed very low risk; scores between 5 and 16 are deemed low risk; scores between 17 and 36 are deemed medium risk; scores between 37 and 64 are deemed high risk; and scores of 65 and greater are deemed very high risk.

The total risk rating for the BDO Zone is the average of all Loaded RI scores and Infrastructure Indicators. The score for El Dorado, CA BDO Zone is ***16.85 out of 100, resulting in an 'A' designation.***

All scoring and rationale for each Risk Indicator are provided in Section D.

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SECTION A: RISK INDICATOR SUMMARY

Figure A-1. All Risk Indicators Sorted by Risk Level

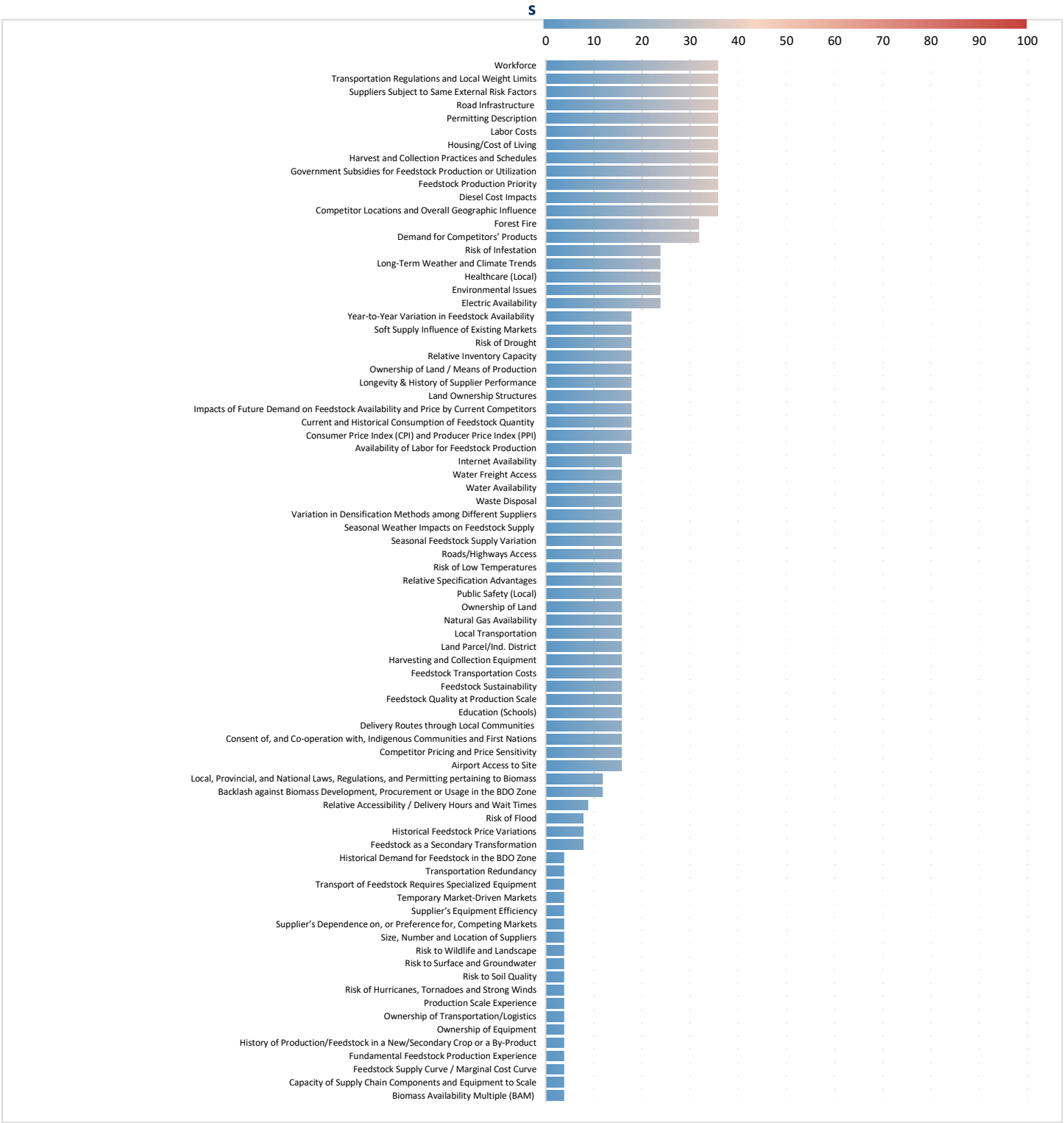


Table A-1. Risk Indicators and Associated Scores

Feedstock Supply Chain Risk Indicators	Raw Risk Likelihood	Raw Risk Impact	Gross Risk Indicator	Mitigation /Notching	Loaded RI Score
Category 1.0: Supplier Risk					
1.1 Risk Factor: Credit-Worthiness/Future Solvency of Suppliers					
1.1.1 Longevity & History of Supplier Performance	6	6	36	50%	18
1.2 Risk Factor: Conflicts of Interest/Vested Interest with Competing Market(s)					
1.2.1 Suppliers' Dependence on, or Preference for, Competing Market(s)	2	2	4	NN	4
1.3 Risk Factor: Supplier Control Over Production and Transportation					
1.3.1 Ownership of Land/Means of Production	6	6	36	50%	18
1.3.2 Ownership of Equipment	2	2	4	NN	4
1.3.3 Ownership of Transportation/Logistics	2	2	4	NN	4
1.3.4 Feedstock as a Secondary Transformation	4	4	16	50%	8
1.4 Risk Factor: Supplier Experience					
1.4.1 Fundamental Feedstock Production Experience	2	2	4	NN	4
1.4.2 Production Scale Experience	2	2	4	NN	4
1.5 Risk Factor: Supplier Harvesting/Collection/Processing Capacity					
1.5.1 Supplier's Equipment Efficiency	2	2	4	NN	4
1.6 Risk Factor: Supplier Motivation					
1.6.1 Feedstock Production Priority	6	8	48	75%	36
Category 2.0: Competitor Risk					
2.1 Risk Factor: Influence on Feedstock Supply of Existing Markets					
2.1.1 Competitor Locations and Overall Geographic Influence	6	6	36	NN	36
2.1.2 Current and Historical Consumption of Feedstock Quantity	6	6	36	50%	18
2.1.3 Competitor Pricing and Price Sensitivity	4	4	16	NN	16
2.1.4 Impacts of Future Demand on Feedstock Availability and Price by Current Competitors	6	6	36	50%	18
2.1.5 Soft Supply Influence of Existing Markets	6	6	36	50%	18
2.1.6 Temporary Market-Driven Markets	2	2	4	NN	4
2.2 Risk Factor: Specific Competitors' Competitive Advantage					
2.2.1 Relative Inventory Capacity	6	6	36	50%	18
2.2.2 Relative Accessibility/Delivery Hours and Wait Times	6	6	36	25%	9
2.2.3 Relative Specification Advantages	4	4	16	NN	16
2.2.4 Demand for Competitors' Products	8	8	64	50%	32
Category 3.0: Supply Chain Risk					
3.1 Risk Factor: Feedstock Availability					
3.1.1 Biomass Availability Multiple (BAM)	2	2	4	NN	4
3.1.2 Feedstock Supply Curve/Marginal Cost Curve	2	2	4	NN	4
3.1.3 Seasonal Feedstock Supply Variation	4	4	16	NN	16
3.1.4 Year-to-Year Variation in Feedstock Availability	6	6	36	50%	18
3.2 Risk Factor: Historical Issues					
3.2.1 Historical Feedstock Price Variations	4	4	16	50%	8
3.2.2 Historical Demand for Feedstock in the BDO Zone	2	2	4	NN	4
3.2.3 History of Production/Feedstock is a New/Secondary Crop or a By-Product	2	2	4	NN	4
3.3 Risk Factor: Non-Weather Based Externalities					
3.3.1 Consumer Price Index (CPI) and Producer Price Index (PPI)	6	6	36	50%	18
3.3.2 Currency Risk	NR	NR	NR	NR	NR
3.3.3 Border Risk	NR	NR	NR	NR	NR
3.3.4 Temporary Externality-Driven Markets for Feedstock	NR	NR	NR	NR	NR
3.4 Risk Factor: Risks Related to Feedstock Production, Harvest, and Collection					
3.4.1 Harvest & Collection Practices & Schedules	6	6	36	NN	36
3.4.2 Harvesting & Collection Equipment	4	4	16	NN	16
3.4.3 Variation in Densification Methods Among Different Suppliers	4	4	16	NN	16
3.4.4 Availability of Labor for Feedstock Production	6	6	36	50%	18
3.5 Risk Factor: Transportation					
3.5.1 Feedstock Transportation Costs	4	4	16	NN	16
3.5.2 Diesel Cost Impacts	6	6	36	NN	36
3.5.3 Transport of Feedstock Requires Specialized Equipment	2	2	4	NN	4
3.5.4 Delivery Routes through Local Communities	4	4	16	NN	16
3.5.5 Transportation Regulations & Local Weight Limits	6	6	36	NN	36

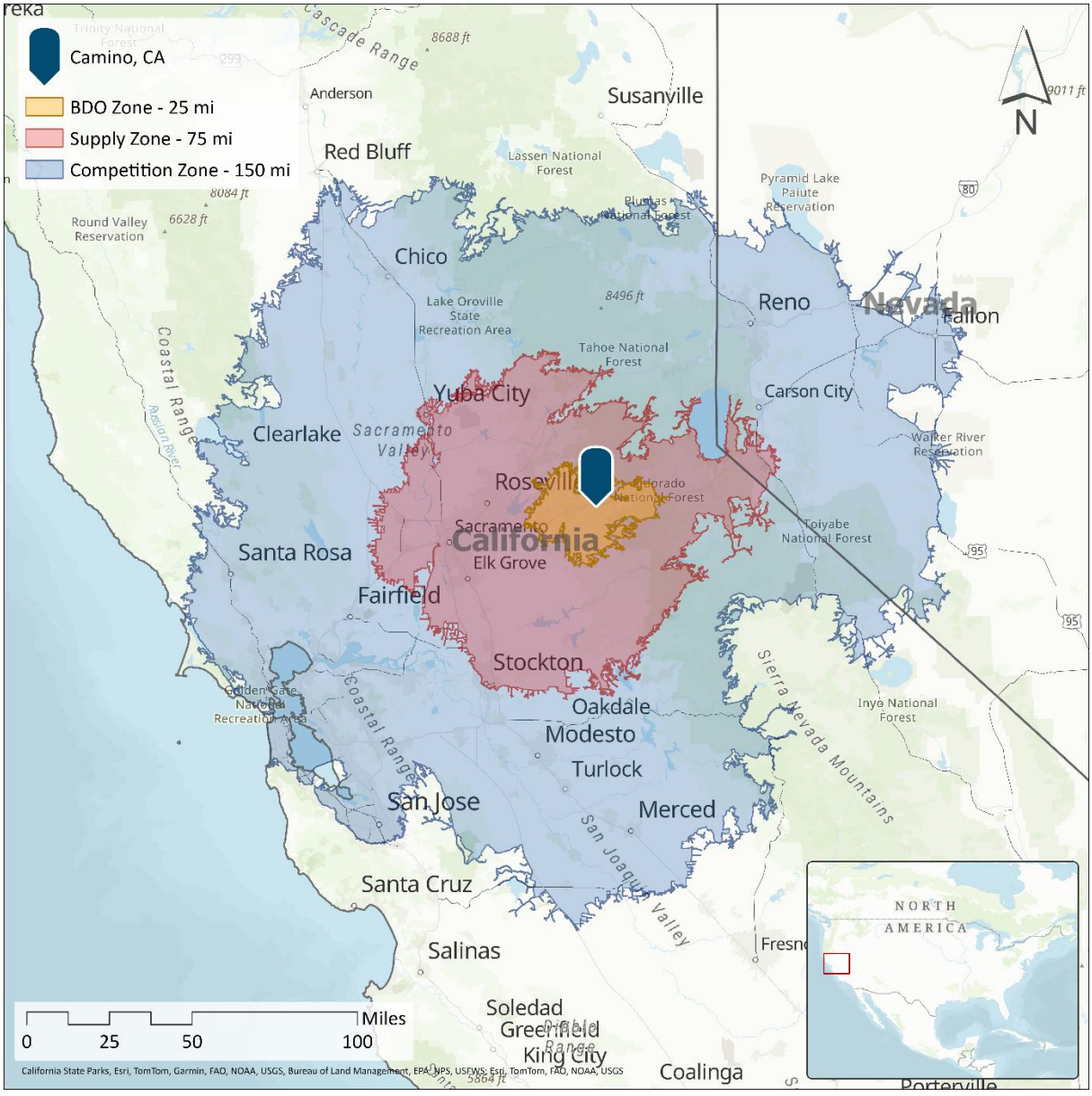
3.5.6 Road Infrastructure	6	6	36	NN	36
3.5.7 Transportation Redundancy	2	2	4	NN	4
3.6 Risk Factor: Supply Chain Resiliency					
3.6.1 Size, Number, and Location of Suppliers	2	2	4	NN	4
3.6.2 Suppliers Subject to Same External Risk Factors	6	6	36	NN	36
3.6.3 Land Ownership Structures	6	6	36	50%	18
3.7 Risk Factor: Climate and Natural Risks					
3.7.1 Seasonal Weather Impacts on Feedstock Supply	4	4	16	NN	16
3.7.2 Long-Term Weather and Climate Trends	8	6	48	50%	24
3.7.3 Forest Fire	8	8	64	50%	32
3.7.4 Risk of Infestation	6	4	24	NN	24
3.7.5 Risk of Hail	NR	NR	NR	NR	NR
3.7.6 Risk of Flood	4	2	8	NN	8
3.7.7 Risk of Drought	6	6	36	50%	18
3.7.8 Risk of Hurricanes, Tornadoes, and Strong Winds	2	2	4	NN	4
3.7.9 Risk of Low Temperatures	4	4	16	NN	16
3.8 Risk Factor: Political and Social					
3.8.1 Government Subsidies for Feedstock Production or Utilization	6	6	36	NN	36
3.8.2 Local, Provincial, & National Laws, Regulations, & Permitting pertaining to Biomass	4	6	24	50%	12
3.8.3 Backlash against Biomass Development, Procurement or Usage in the BDO Zone	4	6	24	50%	12
3.8.4 Consent of, and Cooperation with, Indigenous Communities and First Nations	4	4	16	NN	16
3.8.5 Food Security Concerns	NR	NR	NR	NR	NR
3.9 Risk Factor: Sustainability and Environmental Concern					
3.9.1 Feedstock Sustainability	4	4	16	NN	16
3.9.2 Risk to Soil Quality	2	2	4	NN	4
3.9.3 Risk to Surface and Groundwater	2	2	4	NN	4
3.9.4 Risk to Hydrological Flux	NR	NR	NR	NR	NR
3.9.5 Pesticide Risk to Human and Ecosystem Health	NR	NR	NR	NR	NR
3.9.6 Risk to Wildlife and Landscape	2	2	4	NN	4
3.9.7 Biomass Classified as Genetically Modified Organism (GMO)	NR	NR	NR	NN	NR
Category 4.0: Feedstock Scale-up Risk					
4.1 Risk Factor: Feedstock Scale-Up					
4.1.1 Feedstock Quality at Production Scale	4	4	16	NN	16
4.1.2 Capacity of Supply Chain Components & Equipment to Scale	2	2	4	NN	4
Category 5.0: Infrastructure					
5.1 Risk Factor: Physical Infrastructure					
5.1.1 Land Parcel/Industrial District	4	4	16	NN	16
5.1.2 Ownership of Land	4	4	16	NN	16
5.1.3 Permitting Description	6	6	36	NN	36
5.1.4 Environmental Issues	4	6	24	NN	24
5.2 Risk Factor: Utilities					
5.2.1 Natural Gas Availability	4	4	16	NN	16
5.2.2 Electric Availability	4	6	24	NN	24
5.2.3 Water Availability	4	4	16	NN	16
5.2.4 Waste Disposal	4	4	16	NN	16
5.2.5 Internet Availability	4	4	16	NN	16
5.3 Risk Factor: Transportation/Logistics					
5.3.1 Roads/Highways Access	4	4	16	NN	16
5.3.2 Rail Access to Site	NR	NR	NR	NN	NR
5.3.3 Airport Access to Site	4	4	16	NN	16
5.3.4 Water Freight Access	4	4	16	NR	16
5.4 Risk Factor: Social Infrastructure					
5.4.1 Healthcare (Local)	4	6	24	NN	24
5.4.2 Education (Schools)	4	4	16	NN	16
5.4.3 Local Transportation	4	4	16	NN	16
5.4.4 Public Safety (Local)	4	4	16	NN	16
5.4.5 Housing/Cost of Living	6	6	36	NN	36
5.5 Risk Factor: Labor					
5.5.1 Workforce	6	6	36	NN	36
5.5.2 Labor Costs	6	6	36	NN	36
				Average	**16.85**

SECTION B: BIOMASS AVAILABILITY AND PRICING

OVERVIEW

The assessment of available forest biomass for a prospective project in Camino, California, incorporates three distinct zones (Map B-1). The BDO Zone represents the area defined by a 25-mile drive distance from Camino wherein a new biomass project could be positioned to access rated quantities of biomass. The Supply Zone encompasses the area within a 75-mile drive distance from Camino from where biomass will be sourced. The Competition Zone is defined by a 150-mile drive distance from Camino, where biomass consumers/competitors are situated that impact biomass availability within the BDO Zone.

Map B-1. BDO, Supply, Competition Zones, and Center Point (Camino, CA)



The Supply Zone spreads over twelve counties in California and one county in Nevada. Of the approximately 4.6 million acres of land within the Supply Zone, 1.8 million acres comprise timberland. Softwood tree species constitute 90% of the standing tree volume in the Supply Zone. The predominant softwood species include White fir (25%), Douglas fir (16%), and Ponderosa pine (14%). The remaining 10% of the standing tree volume consists of oaks.[1] Forestry represents a primary economic contributor within the Supply Zone, notwithstanding the presence of only one sawmill and a pellet mill within its boundaries.

Significant tree mortality rates and forest fires occurred in the Supply Zone. Particularly, the Supply Zone experienced a decrease of standing merchantable timber inventories by 11 million bdt (8%) and small-diameter/Pulpwood timber by 1.5 million bdt (13%) between 2016 and 2021 (Figures E-1 and E-2). While the majority of standing timber volume (71%) is located on publicly owned forests (Figure E-3), 59% of timber volume harvests occur on privately owned forest lands (Figure E-4).[2]

In recent years, merchantable fiber scarcity resulting from reduced federal funding, insect infestations, and forest fires has precipitated mill curtailments and closures. Salvage and forest restoration treatments contribute to the local timber supply, but entail significantly higher costs compared to commercial timber harvesting operations. Dependency on federal and state funding has introduced logistical and planning challenges to these operations.

Despite the above challenges, this rating is issued on the overall assumption that a small-scale bio-economy (e.g., bioenergy/biofuel and value-added manufacturing) will be developed in Camino, CA that relies of the increased regional forest restoration and fire remediation activities currently mandated by federal and state regulators. Consequently, a rejuvenation of the local forest industry in the BDO Zone is foreseen by both the client and regional development organizations.

EVALUATED FEEDSTOCKS

The three rated biomass types are:

Pulpwood: Underutilized roundwood logs generated from various harvesting practices. Pulpwood Harvest consists of trees with diameters at breast height (DBH) between 5.0 inches and 10.9 inches generated during sawtimber logging. Pulpwood Thinnings result from wildfire fuel reduction and forest restoration activities. Pulpwood Salvageable Mortality are trees killed or damaged by wildfires or disease. Pulpwood Logs consist of the upper-stem biomass from sawtimber trees that do not meet sawmill specifications.

Forest Residues: Stem sections of tree stems that cannot be processed into merchantable logs (i.e., sawlogs or pulp logs); these include stem tops and large branches.

Sawmill residues: Byproducts of sawmill operations (wood chips, sawdust, shavings, and bark/hog fuel) generated from converting sawlogs into finished wood products, such as lumber and engineered wood. Our competition analysis indicated that all sawmill residues generated in the Supply Zone are utilized by existing competitors. Consequently, sawmill residues were not rated.

The rated feedstock quantities presented herein were determined through estimation of potentially harvestable amounts of each biomass type in the Supply Zone, with consideration of anticipated demand for biomass in the Competition Zone. A Biomass Availability Multiple (BAM) has been applied to account for the overarching assumptions, uncertainties in underlying data, models, and future operating conditions. The resulting rated quantities represent conservative estimates of biomass availability for new bio-projects. Once supply chains are developed, additional quantities of biomass are

[1] apps.fs.usda.gov/fiadb-api/evalidator
[2] Ibid.

expected. Price ranges were established through market analysis and outreach in the Competition Zone and represent current expected delivered prices that a new project will need to pay to secure the rated quantities.

SUPPLY ANALYSIS

Pulpwood

The Supply Zone produces spruce, pine, fir sawlogs, and pulp logs. The majority of sawlogs are transported to a sawmill located 50 miles from Camino. Full stem harvesting and transportation constitute the predominant logging practice in the region. Salvage of dead trees, fire remediation, and forest restoration treatments also occur in the Supply Zone. These treatments exhibit significantly higher costs compared to traditional commercial harvesting, attributable to reduced productivity and accessibility. Some of these costs are mitigated through wildfire fuel mitigation funding, effectively driving the delivered cost of fuel reduction biomass down. Still, a substantial volume of biomass generated through these treatments is piled and burned or masticated and left on site. A new biomass project in Camino could leverage these fuel reduction treatment materials, as well as available pulp logs.

Figure B-1. Average Net Growth, Average Annual Removals, and Average Annual Salvageable Mortality for All-DBH Classes (left) and Pulpwood DBH (right) Classes in the Supply Zone (2019-2021)[3]

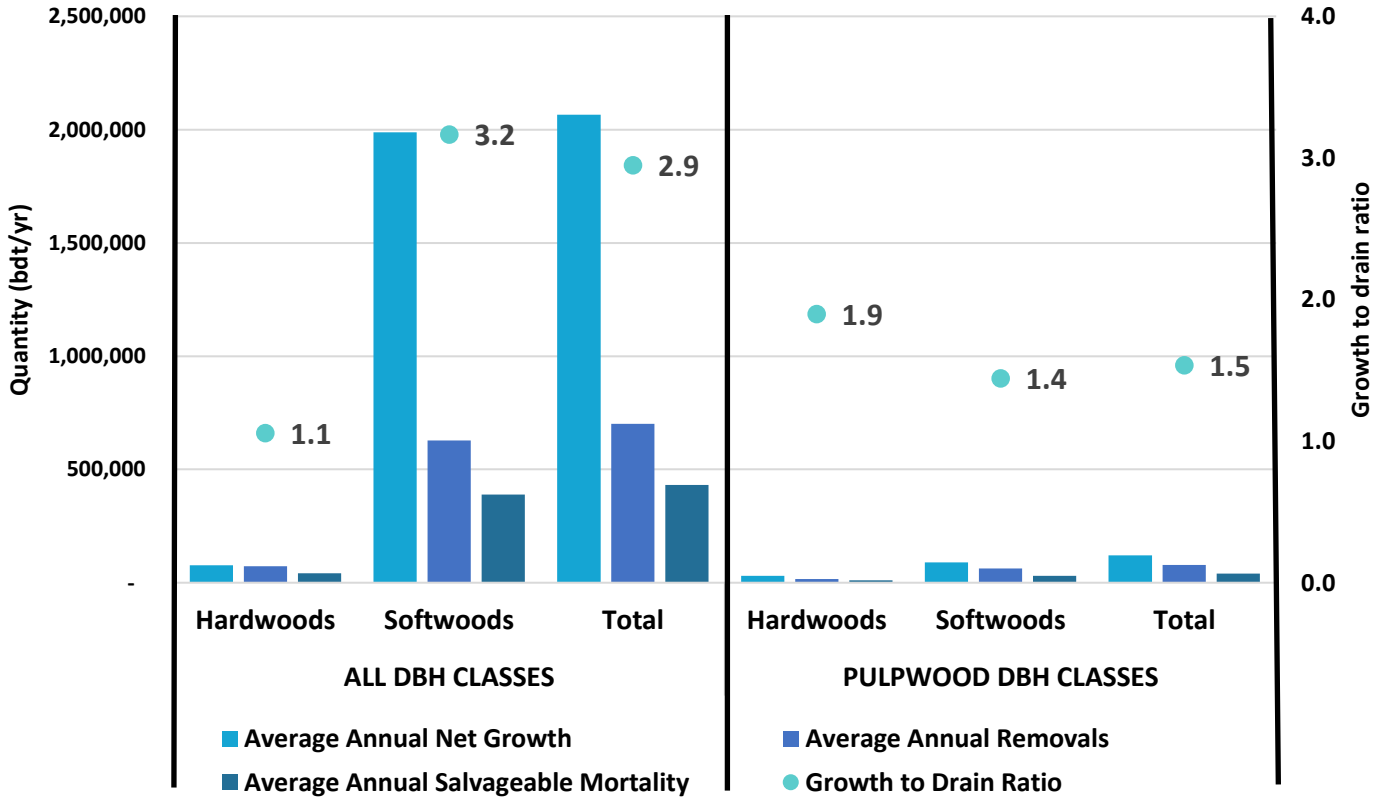


Figure B-1 illustrates the average annual net growth, salvageable mortality, and removals per major species categories (hardwoods and softwoods) for all DBH (diameter at breast height) classes (left) and Pulpwood DBH classes (right).

[3] apps.fs.usda.gov/fiadb-api/evalidator. Variables 2636: Average annual net growth of aboveground biomass of trees (at least 5 inches d.b.h./d.r.c.), in dry short tons, on timberland; 574049: Average annual removals of merchantable bole bark and wood biomass of growing-stock trees (at least 5 inches d.b.h.), in dry short tons, on timberland; 574027: Average annual mortality of merchantable bole bark and wood biomass of growing-stock trees (at least 5 inches d.b.h.), in dry short tons, on timberland

Salvageable mortality represents the average annual quantity of biomass from standing dead trees that could be accessed by commercial harvesting equipment.[4] Overall, the forest stands in the Supply Zone exhibit substantial annual net growth (2 million bdt/yr), of which only one third (700,000 bdt/yr) is harvested. These values have been corroborated with the California Department of Tax and Fee Administration harvest reports (Figure E-6).[5] The growth-to-drain (GTD) ratio[6] of 2.9 indicates a sustainable harvest level and an opportunity to more than double the timber harvest in the Supply Zone. In terms of Pulpwood DBH classes While softwood Pulpwood logs have a GTD ratio of 1.4, hardwood pulp logs have a GTD ratio of 1.9, which could present an opportunity for a new project targeting mixed Pulpwood species.

The FIA data estimated that approximately 78,000 bdt/year of Pulpwood size trees are harvested on average. Forest thinning and fuels reduction projects in Fire Hazard Severity Zones (FHSZ) represent an additional source of Pulpwood, potentially yielding approximately 43,000 bdt/yr while reducing wildfire risk.[7] Furthermore, approximately 40,500 bdt/yr of dead Pulpwood-size trees could be salvaged[8] (Figure B-1). While salvageable Pulpwood may present an opportunity for a new bio-project in Camino, it is important to note that this opportunity would also necessitate harvesting sawtimber, for which there currently exists limited sawmilling capacity in the Supply Zone (i.e., one sawmill). Moreover, foresters from El Dorado National Forest have indicated that the current road network does not provide access to the entire salvageable material, and significant investments in roads would be required. Consequently, a coordinated effort among all local stakeholders is necessary to develop a fully integrated forest products sector capable of efficiently and feasibly supplying and utilizing both timber and biomass. The client indicated that a plan exists to develop both a small-scale biomass and a value-added bio-economy in Camino.

Additionally, FIA data indicates that approximately 31,500 bdt/yr of Pulpwood logs[9] are generated through commercial harvesting operations in the Supply Zone. A pulp log is a log that is sorted during log processing operations as unsuitable for sawmilling or veneer production due to its size, straightness, knots, rot, or other defects. Table B-1 summarizes the total annual Pulpwood availability estimates from various sources in the Supply Zone. A total of 193,000 bdt/year of Pulpwood could be generated in the Supply Zone, assuming the 2016-21 harvest levels and salvage efforts.

Table B-1. Annual Pulpwood Production, Utilization, and Availability Estimates

Source	Quantity (bdt/yr)
Pulpwood Harvest[3]	78,000
Pulpwood Thinnings[7]	43,000
Pulpwood Salvageable Mortality[8]	40,500
Pulpwood Logs[9]	31,500
Total Pulpwood Available	**193,000**

Forest Residues

The FIA data estimates that, on average, approximately 225,000 bdt/yr of Forest Residues[10] are generated in the Supply Zone from harvesting and salvage operations. Local forestry experts have indicated that in-woods grinding operations are

[4] Based on FIA mortality data filtered by slope (< 20%) and distance to road (< 1 mi).
[5] www.cdtfa.ca.gov/dataportal/dataset.htm?url=PropTaxTimberProductionStats
[6] The ratio between the annual net growth and removals. A GTD > 1.2 indicates sustainable removals below the net growth measured in a forest area
[7] TSS Consultants, EDC Phase I Final Report (2023).
[8] apps.fs.usda.gov/fiadb-api/evalidator. 574027: Average annual mortality of merchantable bole bark and wood biomass of growing-stock trees (at least 5 inches d.b.h.), in dry short tons, on timberland. Adjusted for accessibility (slope and distance to road).
[9] apps.fs.usda.gov/fiadb-api/evalidator, Variable 574054: Average annual removals of merchantable bole bark and wood biomass above the sawlog of sawtimber trees, in dry short tons, on timberland
[10] apps.fs.usda.gov/fiadb-api/evalidator, Variables: 574065 - Average annual removals of top and limb bark and wood biomass of growing-stock trees (at least 5 inches d.b.h.), in dry short tons, on timberland. 574040 - Average annual mortality of top and limb bark and wood biomass of growing-stock trees (at least 5 inches d.b.h.), in dry short tons, on forest land. Value rounded to the nearest 1,000 bdt

available in the region and capable of processing this quantity. However, accessibility for chip vans to haul the ground material to a project in Camino may be problematic due to steep slopes and tight road curves.

Sawmill residues

The Supply Zone includes only one 270 MMBF sawmill located in Lincoln, a 50-mile drive distance from Camino, CA.[11] Our analysis estimated that approximately 250,000 bdt/year of sawmill residues are generated by this sawmill (Table B-2).[12] This sawmill supplies residues to its own 18 MW combined heat and power plant, the 24 MW Rio-Bravo Rocklin Biomass Power Station, and a 200,000-ton pellet mill in Rocklin. Consequently, no sawmill residues are available to a new project in Camino and were not rated.[13]

Please note that other three sawmills are located between 90- and 120-mile drive distance from Camino. All four sawmills are owned by the same major forestry company, which also manages a large forestland area in the Supply Zone. Despite several mill curtailments and closures, this company has been maintaining a relatively stable and reliable sawmilling sector in the region. Key to the success of a strong bioeconomy in the BDO Zone will be the development of resilient logging, transportation, sawmilling, and value-added sectors, for which plans are already in place in Camino.

Table B-2. Sawmill Residue Production Estimates in the Supply Zone

Sawmill Residue	Chips	Sawdust	Shavings	Bark	TOTAL
Estimated Quantity (bdt/yr)	**146,000**	**22,000**	**31,000**	**51,000**	**250,000**

Other unrated residues

Our outreach and literature reviews indicated that other sources of biomass may be available, as follows:

- Clean urban wood waste: 180,000 bdt/year[14]
- Urban tree trimmings: 97,000 bdt/year[15]
- Agriculture and horticulture waste: large volumes were reported but no reliable values were made available

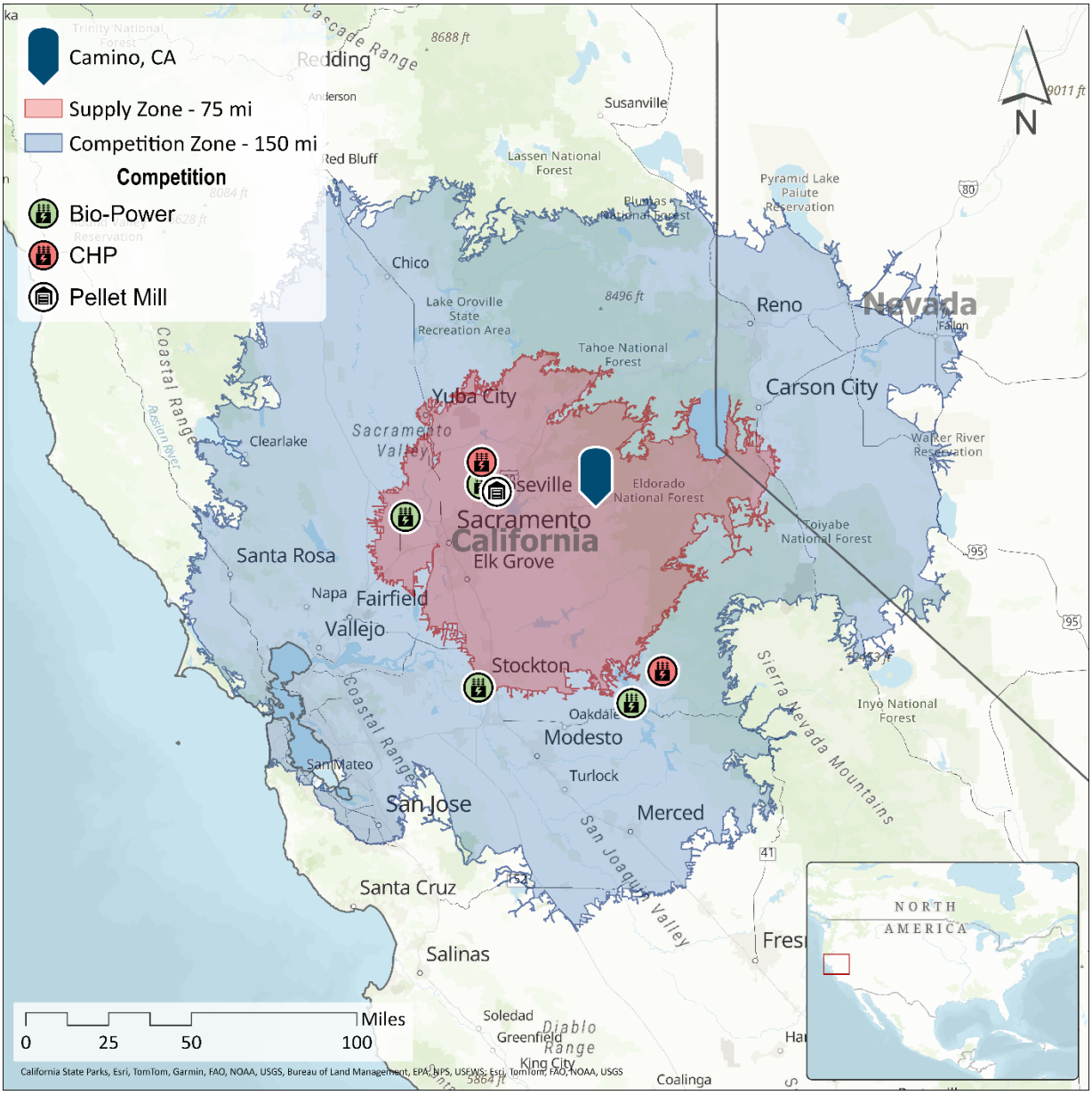
Please note that these feedstocks are partially utilized by the biomass powerplants located in the Competition Zone. A new project in Camino will provide the desired outlet for these feedstocks as well.

[11] forisk.com/product/north-american-forest-industry-capacity-database
[12] Ecostrat sawmill residue calculator. Values are rounded.
[13] Please note that we were not able to validate these estimates with SPI managers. Several attempts to contact them were made with no response. However, the literature and outreach about SPI operations in the region have provided reliable evidence that these estimates are realistic.
[14] 0.07 bdt/person/year (Sierra Business Council and TSS Consultants. Biomass Feedstock Supply Availability and Cost Analysis for the Central Sierra Region of California - Report (2023)) and 2,687,119 people living in the Supply Zone (www.california-demographics.com/counties_by_population)
[15] 0.036 bdt/person/year (Ibid.)

COMPETITION ANALYSIS

Seven operational consumers of biomass exist inside the Competition Zone (Map B-3): one pellet mill, two combined heat and power (CHP), and four biomass power plants. In 2021, a panel mill closed, and two pellet mills are planned to commence operations in 2025 and 2026 (Figure B-2).[16] These seven competitors currently consume an estimated 920,000 bdt of biomass per year (Table B-3), of which an estimated 350,000 bdt/yr is potentially sourced from the Supply Zone.

Map B-3. Map of Biomass Competitors in the Competition Zone[17]



[16] At the time of releasing this report (August 2025), the two facilities reported a significant drop in planned production and a switch to wood chip production rather than pellets (biomassmagazine.com/articles/proposed-california-project-pivots-from-wood-pellets-to-wood-chips)
[17] forisk.com/product/north-american-forest-industry-capacity-database

Figure B-2. Historical Total Wood Intake and Number of Facilities in the Competition Zone[18]

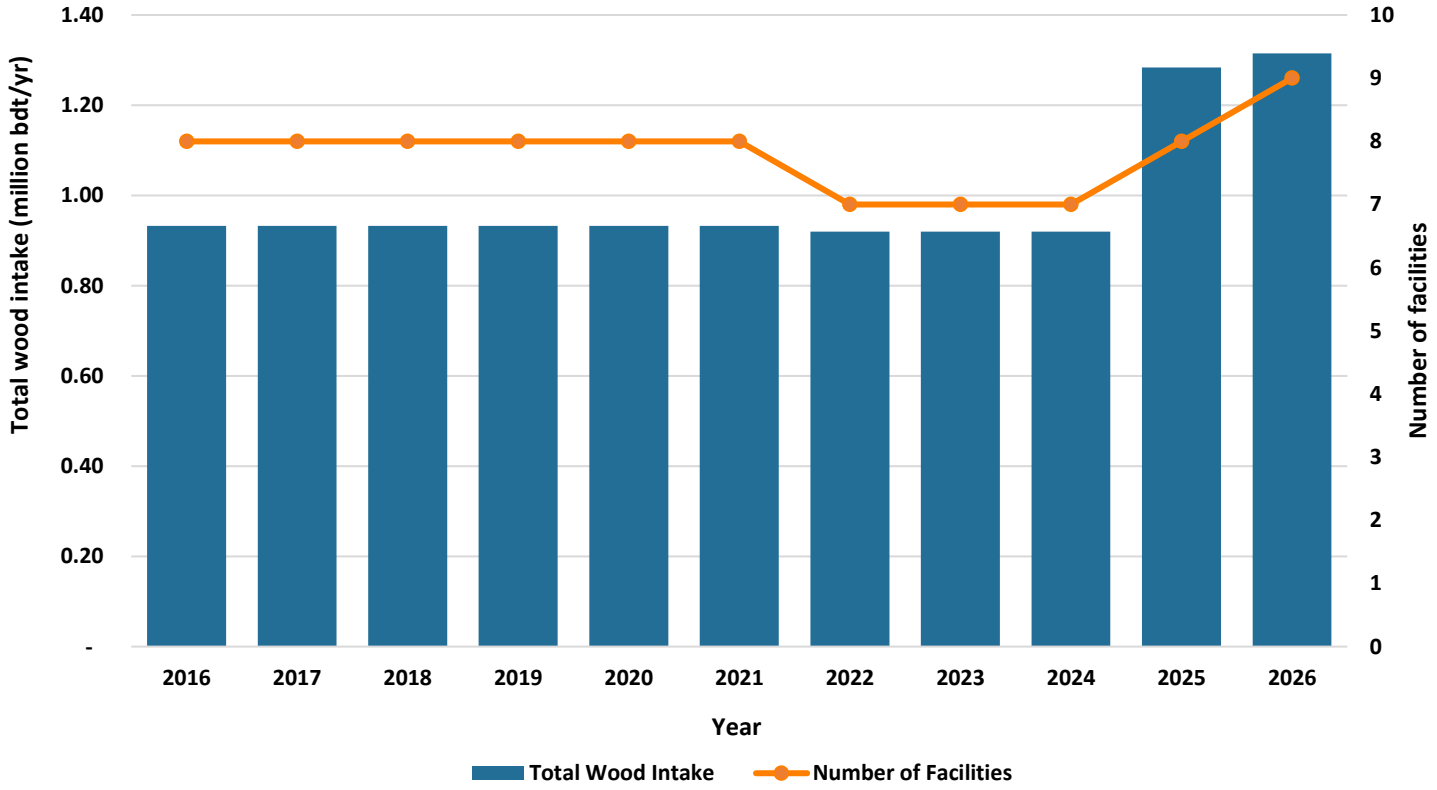


Table B-3. Biomass Demand by Competitor Category[19]

Competitor Category	Biomass Demand (bdt/yr)	% Total Demand	Feedstock Demand from Supply Zone* (bdt/yr)	Biomass Types
Biomass Power	650,000	70%	200,000	50% Sawmill & 50% Forest Residues
Combined Heat and Power	160,000	17%	80,000	100% Sawmill residues
Pellets**	110,000	13%	70,000	100% Sawmill residues
Total	**920,000**		**350,000**	

* Adjusted proportionally to the distance from Camino to each competitor.

** Does not include demand from the two announced pellet mills due to their location in close proximity and association with existing sawmills. Also, due to recent announcement to reduce planned production significantly.

[18] Forisk Database

[19] Ibid. Values rounded to nearest 10,000 bdt

Table B-4 shows that, after considering the current demand (100,000 bdt/yr of Forest Residues and 250,000 bdt/yr of sawmill residues), 193,000 bdt/yr of Pulpwood and 125,000 bdt/yr of Forest Residues remain available to a new project in Camino.

Table B-4. Woody Biomass Production, Demand, and Availability by Feedstock Type

Feedstock Type	Production (bdt/yr)	Demand (bdt/yr)	Project Availability (bdt/yr)
Pulpwood	193,000	-	193,000
Forest Residues	225,000	100,000	125,000
Sawmill Residues	250,000	250,000	0
Total	**920,000**	**350,000**	**318,000**

RATED QUANTITIES AND PRICES

Table B-5 presents available and rated quantities of Pulpwood and Forest Residues. A Biomass Availability Multiple (BAM) factor of 3.0 was applied to the available quantities of Pulpwood and Forest Residues to meet the overarching assumption of a small-scale community bioeconomy mentioned above. The rated quantity of Forest Residues, for example, will meet the demand of a carbon-negative (e.g., bioenergy unit with carbon capture) 5 MW biomass combined heat and power, while the Pulpwood rated quantity will meet the demand of a medium scale value-added (e.g., post and rail) operation. A BAM of 3.0 also accounts for uncertainty in the accuracy of existing inventory, scale-up readiness, historical harvesting practices and volumes, and sudden changes in supply and demand. However, once supply chains for the envisioned local bioeconomy were established, additional volumes will be available for expansion.

Table B-5 also presents price ranges of Pulpwood and Forest Residues delivered to an average 50-mile drive distance from Camino. These price ranges were estimated based on outreach to local forestry professionals and corroborated with available literature.[20] Pulpwood prices include stumpage, harvesting, and hauling costs. In addition, Forest Residue prices include chipping/grinding costs (Table B-6).

Table B-5. Rated Quantities and Delivered Price Ranges of Biomass in the Supply Zone

Biomass type	Available Quantity (bdt/yr)	Biomass Availability Multiple (BAM)	Rated Quantity (bdt/yr)	Delivered Price Range ($/bdt)
Pulpwood	193,000	3.0	64,300	75-95
Forest Residues	125,000	3.0	41,700	80-100
TOTAL	318,000		106,000	

[20] Several reports provided by the client, Ecostrat biomass supply analyses, and Forisk market prices (2024 Q1 – 2025 Q1)

Table B-6 provides estimated unsubsidized delivered price ranges for Pulpwood and Forest Residues within a 50-mile haul drive distance from the center point. These price estimates are based on input from regional forestry professionals and cross-referenced with published sources.

Table B-6. Price Range Components for Pulpwood and Forest Residues

Feedstock Type	Stumpage (bdt)	Collection (bdt)	Logging (bdt)	Chipping (bdt)	Transport (bdt)	Delivered Price Range ($/bdt)
Pulpwood Harvest[21]	0		45-60		30	75-90
Pulpwood Logs	5		45-60		30	80-95
Pulpwood Salvageable	5		45-60		30	80-95
Pulpwood Thinnings[22]	0		45-60		30	80-95
Forest Residues		15-25		35-45	30	80-100

Pulpwood delivered prices are mostly affected by the high logging costs associated with road building/maintenance, equipment, and forest restoration/salvage. Delivered prices of chipped/hogged Forest Residue are mainly affected by high collection and chipping costs associated with the of chipping/grinding equipment and parts costs that skyrocketed in the past three years.

Outreach with regional stakeholders indicates that competitors, particularly biomass power plants and combined heat and power facilities, acquire biomass at subsidized delivered prices at or below $50/bdt. Non-timber forestry objectives, including wildfire mitigation, watershed protection, and ecological restoration depend on government subsidies. In addition, BioRAM funding provides subsidies to existing biomass plants.[23] However, these are not direct feedstock subsidies. The price ranges presented in Tables B-5 and B-6 reflect unsubsidized prices.

Consequently, the rated pricing differential reduces the likelihood that competitors will outbid new entrants for the same feedstock, as their economic models rely on different cost structures. This market dynamic presents low risk regarding competitive pricing pressure, with minimal anticipated impact on a new project ability to secure required feedstock volumes.

OPERATIONAL CONSIDERATIONS

Pulpwood

To supply the rated quantity of Pulpwood to Camino, two additional logging crews[24] and five logging trucks[25] would be necessary. Local foresters have communicated that this capacity exists in the region. However, they have also noted that road networks, especially in National Forests and mountainous landscapes, are scarce and challenging. Furthermore, the forestry and logging workforce in El Dorado County is aging, with limited entry of young workers into the industry being reported.[26] A potential shortage of truck drivers was also reported in the region. However, the client reported that

[21] By-product of sawtimber harvesting, Pulpwood assumes no stumpage.
[22] Forest restoration activities paid on a per acre basis.
[23] Forest Management Opportunity Report, 2022
[24] Estimates assume an average of 12 truckloads/day/crew (2-3 people per crew), 14 bdt/truckload, 9 work months/year (allowing for months and areas with heavy snow)
[25] Estimates assume an average of 4 roundtrips per day
[26] Sierra Business Council, TSCI CAL Frame Biomass Supply Report (2024).

significant funding has been acquired for training in forestry in the El Dorado County that will alleviate this situation considerably.

Pulpwood logs are the most appropriate feedstock for producing poles, post and rail, and high-quality wood chips. However, additional equipment will be required such as log loaders, chippers, post lathes, de-barkers (bark should be separated before chipping/lathing so high-value quality products are generated).

Forest Residues

In addition to the above considerations, which also apply to Forest Residue recovery, one grinder[27] and four chip vans[28] would be necessary to grind and transport the rated quantity of Forest Residues to Camino. Outreach to local foresters has indicated availability of grinders and chip vans in the region. However, accessing Forest Residues located in steep terrain will present challenges.

Forest Residues are collected and chipped/ground in the forest by high productivity mobile equipment. The quality of resulting feedstocks will depend on the part of the tree from which they were produced. Usually, Forest Residues are aggregated in piles at roadside and mobile chippers/grinders comminute them directly into chip vans. Consequently, the resulting feedstock quality could be highly heterogeneous (i.e., variable particle sizes and bark content). More importantly, the feedstock could be contaminated with sand, rocks, mud, and metal pieces. Consequently, Forest Residues are appropriate to biomass products for which strict quality specifications are not necessary (e.g., boiler fuel, mulch, etc.). However, in-woods quality control measures, such as sorting and storage/seasoning, could be implemented if higher quality biomass feedstocks are required.

REGULATORY CONSIDERATIONS

In California, access to biomass feedstock for projects like biomass heating is regulated primarily by the California Department of Forestry and Fire Protection (CAL FIRE) under the Z'berg-Nejedly Forest Practice Act of 1973 and the associated California Forest Practice Rules. These apply to non-federal lands, including state and private timberlands in El Dorado County, which is part of the Sierra Nevada region with significant forested areas. Permits focus on sustainable harvesting, environmental protection, and public review, and are submitted through the online California Timber Regulation and Environmental Evaluation System (CalTREES). Multi-agency review involves entities like the California Department of Fish and Wildlife, Regional Water Quality Control Boards, and the California Geological Survey. Public lands may involve additional coordination with the U.S. Forest Service (USFS) via agreements like Good Neighbor Authority, with El Dorado County having involvement in projects with the Eldorado National Forest.

El Dorado County itself promotes biomass access through its Community Wildfire Protection Plan (updated May 2025), which prioritizes hazardous fuel reduction strategies and encourages biomass utilization to reduce wildfire risk and air pollution. However, county-level efforts defer to state permitting for actual harvesting. No county-specific permits override state rules; instead, the county facilitates projects via strategic plans and initiatives, including the Bio-Mass Recycle to Energy 7 County proposal awarded in July 2025.

Wildfire Fuel Reduction Biomass

This involves thinning, brush removal, and salvage from high-hazard zones to mitigate fire risk. Regulations prioritize expedited access to encourage removal over on-site burning or mastication. Much of this occurs on public lands under fuel reduction goals, with biomass extracted for utilization.

- **Key Permits and Exemptions** (to avoid full Timber Harvesting Plan (THP) process):

[27] Estimates assume 20 bdt/hr grinder productivity, 9 work months/year (allowing for months and areas with heavy snow)
[28] Estimates assume 4 chip vans per grinder

- **Forest Resilience Exemption (formerly Forest Fire Prevention Exemption)**: Allows up to 300 acres for fuel breaks and thinning in high-hazard areas; no THP needed if conditions met (e.g., no watercourse impacts).
- **Dead, Dying, or Diseased Exemption**: For removing infested or fire-damaged trees; unlimited acreage if documented.
- **Fuel Hazard Reduction Emergency Notice**: For immediate post-fire or preemptive thinning; valid for 1 year, extendable.
- **Less Than 3-Acre Conversion Exemption**: For small-scale clearing, with waivers for repeated use under certain conditions.
- **Structure Protection Fire Safe Exemption**: For 150-300 feet around structures.

These exemptions require notices filed with CAL FIRE, often with minimal review (e.g., 5-10 days). In El Dorado County, fuel reduction is supported by multiple state-identified priority projects (part of CAL FIRE's 45-Day Report), and collaborations with USFS on Eldorado National Forest projects, such as fuels management and hazardous fuel reduction initiatives. Biomass from these activities can be accessed via contracts with LTOs, funded partly by state grants (e.g., up to $2,500/acre for contractors).

If removal involves burning residues, separate burn permits from the El Dorado County Air Quality Management District are needed on permissive burn days.

Recent Changes (2023-2025)

Regulations have evolved to accelerate fuel reduction amid increasing wildfires, with updates emphasizing exemptions for faster access. No major overhauls to traditional THP processes, but refinements to exemptions:

- **AB 2276 (Effective January 2024)**: Repealed the Small Timberland Owner Exemption; renamed the Forest Fire Prevention Exemption to Forest Resilience Exemption; extended fuel reduction exemptions (e.g., Forest Resilience, Oak Woodland) until January 1, 2031.
- **AB 1526 (2023)**: Authorized waivers for one-time use of <3-acre conversion exemptions, with Board of Forestry regulations implemented in 2025.
- **Emergency Forest Resilience and Oak Woodland Exemption Amendments (Effective January 2025)**: Updated rules for exemptions, incorporating AB 2276 changes to enhance resilience-focused activities.
- **Forest Practice Rules 2025 Edition**: Incorporates all above, with forms revised July 2024 (e.g., for exemptions).
- **Wildfire and Forest Resilience Action Plan Updates**: CAL FIRE expanded fuels reduction to 100,000 acres annually by 2025, indirectly easing access via more funded projects.

No El Dorado County-specific changes noted; county programs align with state updates. These shifts generally facilitate easier access to fuel reduction biomass, with minimal impact on traditional forestry permits.

SECTION C: INFRASTRUCTURE



PROPERTY OVERVIEW

Address:	3955 Carson Rd.
City:	Camino
State:	CA
County:	El Dorado
Acres:	177
Topography:	Graded, partially paved
Zoning:	M Industrial
Building on Site:	No

SITE CONTACTS

Principal Management Analyst
County of El Dorado, California
Tara Stout
360 Fair Lane
Placerville, CA 95667
530-621-5401
tara.stout@edcgov.us

ADDITIONAL NON-RATED SITES

Infrastructure Sites Contact
Bob Buckingham
BDO Zone Infrastructure
bob@ecostrat.com

PROPERTY PROFILE

The subject property encompasses 177 acres of industrially-zoned land in Camino, CA, formerly a Sierra Pacific Industries sawmill. The site maintains access to essential utilities (propane, water, septic), but requires some electrical infrastructure upgrades. Located 0.5 miles from US Highway 50 and 54 miles from Sacramento, the property offers adequate transportation access despite lacking rail connectivity. Refer to Sections D and E (Map E-1) for details.

Transportation

Nearest Highway: Highway 50
Nearest Interstate: I-80 (25 miles)
Nearest Airport: Placerville (19 miles)
Nearest Commercial Airport: Sacramento, CA (54 miles)
Rail Served: No
Rail Accessible: No
Nearest rail is Sacramento, CA (50 miles)
Rail Infrastructure in Place: No

Electric Service

Supplier: Pacific Gas & Electric
Ownership: Private
Phone: 877-660-6789
Website: www.pge.com/
All Utilities Extend to Site: Yes
Nearest Substation: Adjacent (abandoned)
Capability: Limited service, three-phase power requires substation upgrade

Propane

Suppliers: JS West, 49'r, Suburban, AmeriGas
Ownership: Private

Water

Supplier: El Dorado Irrigation District (EID)
Ownership: Municipal
Phone: 970-533-7725
Capability: Industrial
Website: www.eid.org
Size of Main: 12"
Peak Capacity: 1 million gal/day

Wastewater

Supplier: Septic onsite
Ownership: Private
Phone: NA
Capability: NA
Website: NA
Size of Main: NA

Telecommunications

Supplier: Xfinity (Comcast) and others
Ownership: Private
Phone: NA
Capability: Wireless and fiber optics
Website: www.xfinity.com
Platforms: Fiber, Cable

SECTION D: RISK INDICATOR SCORING METRICS

CATEGORY 1.0: SUPPLIER RISK

1.1 Risk Factor: Credit-Worthiness/Future Solvency of Suppliers

1.1.1 Longevity & History of Supplier Performance

Rationale: Number of years in business is a positive indicator of future solvency. Historical performance is an indicator of future performance.

Risk Information: There is a well-established history of logging and grinding operations in the Supply Zone. However, in recent years, a significant capacity reduction in sawmilling activities occurred in the BDO Zone, which presents heightened risk for potential biomass projects. The historical performance trajectory indicates potential future solvency concerns among suppliers, as evidenced by mill closures and curtailments mentioned in Section B. The declining trend in sawmilling capacity creates some uncertainty regarding supplier stability and their ability to maintain a consistent biomass supply over the long term. This historical pattern suggests a medium risk for both likelihood and impact, as new projects may encounter challenges in securing reliable, financially stable suppliers.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching *RRL Mitigation (Notch)* This risk is mitigated by the overarching assumption that supply for the local bioeconomy will consist of biomass (Pulpwood and Forest Residues) generated by fire remediation and forest restoration activities. The client indicated that recent national and state legislative measures provide strong incentives to access these types of feedstocks, thus, mitigating/reducing the risk associated with a downturn in sawmilling activities in the region. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**18**

1.2 Risk Factor: Conflicts of Interest/Vested Interest with Competing Market(s)

1.2.1 Suppliers' Dependence on, or Preference for, Competing Markets

Rationale: Suppliers may have a vested interest or preference in supplying specific competitors with biomass feedstock. Preferences may be due to historical, long-term, or personal relationships, less stringent feedstock quality requirements, more flexible operating hours by competing markets, or suppliers' dependence on competing markets to accept or purchase other products/by-products. During periods of feedstock shortage, such suppliers may be more likely to allocate the scarce supply to competitors, resulting in supply disruptions for the Issuer.

Risk Information: There is no evidence that suppliers have vested interest or preference in supplying the rated woody biomass to competitors.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**

Raw Risk Impact (RRI) The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**Score** **2**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**Score** **4**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**Score** **4**

1.3 Risk Factor: Supplier Control Over Production and Transportation

1.3.1 Ownership of Land/Means of Production

Rationale: Suppliers that own land or a production facility where feedstock is produced tend to have better control of supply chains and present lower degrees of supply risk.

Risk Information: Approximately 70% of standing timber in the Supply Zone is publicly owned (Figure E-3), while 59% of harvested volumes occur on private forestlands. This inverse relationship between ownership and harvesting indicates increased risk associated with supply control. Public ownership introduces additional complexity through regulatory requirements, permitting processes, and funding constraints that can affect harvest timing and volume. New projects face medium risk regarding feedstock security due to this ownership structure, as they must navigate both public land management policies and private landowner priorities to secure a consistent supply.

Raw Risk Likelihood (RRL) The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**Score** **6**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching *RRL Mitigation (Notch)* This risk is mitigated by the rated quantities of Pulpwood and Forest Residue which can be readily available from both public and private forestlands. Moreover, as mentioned above, recent national and state legislative measures incentivize biomass harvesting in National and State forests, thus further reducing this risk. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**Score** **18**

1.3.2 Ownership of Equipment

Rationale: In most cases, suppliers that own or lease equipment for harvest, collection, and processing feedstock are at lower risk than those that are not.

Risk Information: Harvesting, grinding, and transportation equipment in the Supply Zone is entirely owned by logging companies. This ownership structure provides these companies with full control over equipment deployment, maintenance schedules, and operational decisions. The established equipment ownership model reduces risk for new projects, as it indicates a mature supply chain infrastructure with operators experienced in local conditions. The likelihood of equipment-related supply disruptions is therefore assessed as very low, with correspondingly very low potential impact on project operations.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

1.3.3 Ownership of Transportation/Logistics

Rationale: In most cases, suppliers that own or lease transportation equipment necessary to transport biomass from forests are at lower risk than those that do not. However, in some circumstances, reliance on third parties to transport biomass is common practice and does not contribute to risk.

Risk Information: Forestry companies in the Supply Zone maintain ownership of their logging truck and chip van fleets. This integrated approach to transportation logistics indicates a developed supply chain with established transportation protocols and capacity. Companies with direct control over their transportation assets typically demonstrate greater reliability in meeting delivery schedules and responding to changing market conditions. This established transportation infrastructure presents very low risk for new projects regarding logistical disruptions, with minimal impact anticipated on biomass delivery reliability.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**

Loaded RI Score	Score
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

1.3.4 Feedstock as a Secondary Transformation

Rationale: Secondary transformation is dependent upon the production of primary products. Forest Residue and Pulpwood (with the exception of Pulpwood Salvageable Mortality and Pulpwood Thinning) are all secondary transformations of a primary product.

Risks are higher if the feedstock is a secondary transformation of a primary, more valuable product. In the absence of markets for the primary product, it may not be economical for suppliers to produce biomass on their own. For example, a supplier may produce dimensional lumber as its primary product and Forest Residue and Pulpwood Logs as a by-product, therefore relying on the health of the housing market for production levels. If the demand for dimensional lumber drops, so can the availability of Forest Residue and Pulpwood Logs.

Understanding the economic drivers for suppliers' primary products can help gauge risk levels for secondary transformation biomass products.

Risk Information: The Forest Residue portion of the rating, which makes up 39% of total rated quantity, is considered a secondary transformation. Due to the fact that only two sawmills exist in the Supply Zone, both owned by the same company (Sierra-Pacific Industries), RI 1.3.4 for Forest Residue is rated as medium risk. On the other hand, the high BAM applied to Pulpwood, representing 61% of rated feedstock quantity, renders the risk associated with RI 1.3.4 as low. On balance, therefore, the risk is deemed low.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	4
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	4
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	16
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) This risk is mitigated by the rationale presented in 1.1.1: the overarching assumption that supply for the local bioeconomy will consist of biomass (Pulpwood and Forest Residues) generated by fire remediation and forest restoration activities, thus, mitigating/reducing the risks associated with a downturn in sawmilling activities in the region. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	50%
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 8 out of 100.	8

1.4 Risk Factor: Supplier Experience

1.4.1 Fundamental Feedstock Production Experience

Rationale: Risk is higher when suppliers have limited experience with harvesting, processing, and/or collecting biomass.

Risk Information: The risk assessment indicates very low concern given the extensive expertise in feedstock production present throughout the Supply Zone. Logging operators, forest management professionals, and processing facilities

demonstrate significant collective experience with the specified feedstock types. This established knowledge base encompasses harvesting techniques, quality control measures, and processing requirements specific to regional biomass resources. The depth of industry experience significantly reduces the likelihood of supply disruptions due to operational inexperience, with minimal impact anticipated on feedstock quality or availability.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

1.4.2 Production Scale Experience

Rationale: Scale-up entails risk. Risk is higher when suppliers have limited experience producing the required quantity of feedstock.

Risk Information: Logging companies in the Supply Zone demonstrate capability to supply the rated quantities of Pulpwood and Forest Residue to a project located in Camino. The risk is very low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

1.5 Risk Factor: Supplier Harvesting/Collection/Processing Capacity

1.5.1 Supplier's Equipment Efficiency

Rationale: Equipment efficiency significantly influences the supplier's feedstock production capacity. Understanding the supplier's equipment capability enables understanding of their ability to produce feedstock of suitable quality.

Risk Information: Logging companies in the region employ high-efficiency logging and grinding equipment. The modern mechanized harvesting systems, processors, and grinding equipment demonstrate capacity to process the rated quantities of biomass. This equipment efficiency substantially reduces the risk of production inefficiencies or quality inconsistencies. The presence of appropriate technology and machinery indicates very low likelihood of equipment-related supply disruptions, with correspondingly very low potential impact on feedstock availability or quality.
Raw Risk Likelihood (RRL) — **Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10. — **2**
Raw Risk Impact (RRI) — **Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10. — **2**
Gross Risk Indicator (GRI) — **Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100. — **4**
Mitigation/Notching — **Notch**
RRL Mitigation (Notch) — **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100. — **4**

1.6 Risk Factor: Supplier Motivation

1.6.1 Feedstock Production Priority

Rationale: When biomass feedstock is a secondary or non-core line of business, a by-product, or a residual from a more valuable product, suppliers may not put in sufficient effort for consistent production. The risk of breach increases when feedstock production and/or delivery compromise a supplier's ability to make a primary product. When biomass feedstock is a by-product of another main higher margin or main product such as Forest Residue and Pulpwood Logs, supply may not be a top priority for a supplier.
Risk Information: Forest Residue, Pulpwood Logs, and Pulpwood Harvest are dependent on sawlog production, while Pulpwood Salvageable Mortality and Pulpwood Thinnings are not. As such, 77% of potentially available woody biomass is dependent on the sawmilling industry, and 23% is not. Due to the fact that there is only one sawmill in the Supply Zone, and other sawmills located in close proximity are owned by the same company (Sierra-Pacific), the risk associated with the 77% of rated woody biomass is considered high. Risk regarding the remaining 23% of material is considered low, given the push towards wildfire prevention, although it is difficult to say with certainty whether the current approach to biomass removal will remain over a hypothetical 20-year life of a project.
Raw Risk Likelihood (RRL) — **Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10. — **6**
Raw Risk Impact (RRI) — **Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10. — **8**
Gross Risk Indicator (GRI) — **Score**
The Gross Risk Indicator (RRL X RRI) is 48 out of 100. — **48**
Mitigation/Notching — **Notch**
RRL Mitigation (Notch) — **75%** Notching is applied due to the high BAM, which allows for skewing the woody biomass mix towards Pulpwood Salvageable Mortality and Pulpwood Thinnings (i.e. wildfire risk reduction material).

RRI Mitigation (Notch) No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 75%.
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100. **36**

CATEGORY 2.0: COMPETITOR RISK

2.1 Risk Factor: Influence on Feedstock Supply of Existing Markets

2.1.1 Competitors' Locations and Overall Geographical Influence

Rationale: Competitors' locations relative to siting locations within a BDO Zone can affect the viability of procuring feedstock and the cost of that feedstock. Accurate and detailed competitor mapping provides an understanding of a competitor's geographical influence on new plants within a BDO Zone, including competitive advantages such as short hauling.

Risk Information: Seven competitors for Forest Residues, Pulpwood and, potentially, material derived from wildfire prevention efforts, operate within the Competition Zone (Map B-3, Section B), of which four are located in the 75-mile Supply Zone. This geographical proximity creates medium likelihood of supply constraints with corresponding medium impact on feedstock availability and pricing. The risk also applied to Pulpwood Thinnings and Pulpwood Salvageable Mortality as these competitors may eventually increase the quantities of wildfire prevention materials, depending on pricing and quality.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch)	**NN**
RRI Mitigation (Notch) No adjustment.	
The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**36**

2.1.2 Current and Historical Consumption of Feedstock Quantity

Rationale: Clear understanding of feedstock consumption by key competitors for each rated feedstock type in the BDO Zone is essential to quantifying competitor risk.

Understanding current consumption and historical trends of feedstock utilization can provide valuable information about feedstock price elasticity during shortages and insight into events that may impact future supply conditions. It can enable more accurate estimates of the sensitivity of feedstock availability to potential future consumption levels or the impact of external events (e.g., weather events, structural economic changes, seasonality, or policy change).

Risk Information: As presented in Section B (Figure B-2), the anticipated consumption levels pose medium risk to feedstock availability for new projects, as existing and new facilities may secure supply agreements before a new entrant in Camino will be able to establish a strong market position.	
Raw Risk Likelihood (RRL) The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**Score** **6**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching *RRL Mitigation (Notch)* See 2.1.1; This risk is mitigated by locating a project in Camino, closer to the forest restoration and fire remediation activities than the major competitors. The overarching assumption of developing a community bioeconomy further reduces this risk. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**Score** **18**

2.1.3 Competitor Pricing and Price Sensitivity

Rationale: Understanding how much competitors pay (or receive) for different feedstock types is essential in determining the Issuer's competitiveness and accurately assessing the delivered cost range in the BDO Zone rating.

Current and historical prices paid/received by competitors provide insight into their procurement behaviors and exert pressure on suppliers in the BDO Zone, such as the ability/willingness to pay premiums for feedstock during times of feedstock shortage or reduce prices (or cut-off deliveries) during gluts. Competitors that have the ability to offer higher prices for feedstock during feedstock shortages can pose a significant risk to the Issuer.

Knowledge of competitor pricing and price sensitivity is also an essential prerequisite to formulating a feedstock cost curve, which can enable predictions of feedstock redundancy, i.e., how much feedstock could become available at different pricing levels (see Category 3–Supply Chain Risk 3.1.3).

Risk Information: Outreach with regional stakeholders indicates that competitors, particularly biomass power plants and combined heat and power facilities, acquire biomass at subsidized delivered prices at or below $50/bdt. The price ranges presented in Table B-5 reflect unsubsidized prices. This pricing differential reduces the likelihood that competitors will outbid new entrants for the same feedstock, as their economic models rely on different cost structures. This market dynamic presents low risk regarding competitive pricing pressure, with minimal anticipated impact on a new project's ability to secure required feedstock volumes.	
Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed low, therefore the RRI is 4 out of 10.	**Score** **4**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**Score** **16**

Mitigation/Notching	Notch
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

2.1.4 Impacts of Future Demand on Feedstock Availability and Price by Current Competitors

Rationale: Feedstock utilization in a BDO Zone can change over time. Expansion of feedstock demand by current competitors can put additional pressure on feedstock and lead to higher prices, feedstock disruptions, shortages, supplier breaches, or other types of supply chain disruption.

If current markets for feedstock have been publicly signaling the potential for increased demand for feedstock, high interest in a supply zone can make suppliers overconfident, leading to a supplier-controlled market where short-term contracting becomes the norm and supply chain reliability is compromised for the Issuer. If and when it occurs, increased demand on feedstock may decrease availability and increase cost for new plants within the BDO Zone.

Risk Information: As illustrated in Figure B-2, a significant increase in total competitor capacity is anticipated within the next two years. This projected growth in processing capacity will introduce additional demand pressure on regional biomass resources, potentially affecting both availability and pricing. Competitors with established market positions may secure long-term supply agreements that limit access for new entrants. This evolving competitive landscape presents medium risk regarding future feedstock availability, with corresponding impact on pricing and supply security for new projects in the BDO Zone.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) Recent announcements regarding the two pellet facilities indicate that a much smaller competition for the rated quantities of Pulpwood and Forest Residues will exists than originally anticipated. Some risk should still be expected from existing large scale biomass competitors in the region as recent national and state regulations are expected to encourage increased biomass utilization. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**50%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**18**

2.1.5 Soft Supply Influence of Existing Markets

Rationale: In some cases, existing markets for feedstock may be able to exert high degrees of pressure over local suppliers, effectively enabling control of feedstock, especially during times of shortage. This control can derive from qualitative or "soft" factors, such as long previous relationships between local suppliers and existing markets for feedstock.

Risk Information: Long-term relationships exist between suppliers and biomass consumers, particularly between those located in close proximity. These established business relationships often extend beyond formal contracts to include operational familiarity, payment reliability, and mutual understanding of quality requirements. During supply shortages, suppliers typically prioritize these established customers, potentially limiting availability for new market entrants. This relationship dynamic introduces medium risk to supply security for new projects, as they must overcome incumbent market advantages to establish reliable supply chains.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) This risk is mitigated by locating the project in Camino and by the overarching assumption of developing a local community bioeconomy that targets the forest restoration and fire remediation activities currently being undertaken and further planned in close proximity. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**50%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**18**

2.1.6 Temporary Market-Driven Markets

Rationale: Alternative, non-traditional, market-driven competitors for feedstock can drive feedstock demand in unusual circumstances.

Risk Information: No significant alternative biomass markets have been identified or reported during the assessment process. The absence of temporary or opportunistic biomass consumers reduces the risk of unexpected competition for feedstock resources. Without these transient market participants, supply patterns remain more predictable and stable throughout market cycles. This market stability indicates low risk regarding temporary competitive pressures, with minimal impact anticipated on feedstock availability or pricing for new projects in the BDO Zone.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch)	**NN**

No adjustment.

RRI Mitigation (Notch)
No adjustment.

The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).

Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

2.2 Risk Factor: Specific Competitors' Competitive Advantage

2.2.1 Relative Inventory Capacity

Rationale: The more inventory a competing biomass facility is able to store, the more competitive pressure it can exert on supply. The ability to store large inventories allows competitors to purchase inventory when the prices are low, potentially giving it an economic advantage. Additionally, the ability to store inventory during feedstock supply surpluses can enable competitors to continue to intake feedstock when the Issuer's plant (with lesser inventory capacity) may be forced to put suppliers on quota. Larger inventory capacity on the part of competing markets creates supplier loyalty and can make it more difficult for new projects to secure supply without paying a significant premium.

Risk Information: Current competitors maintain large onsite storage capacities, which can exert competitive pressure on new projects. These established inventory systems allow existing facilities to continue accepting deliveries during seasonal supply fluctuations, weather disruptions, or other logistical challenges. They can also purchase and store excess material during price downturns, creating economic advantages. This inventory capacity differential poses medium risk to new entrants who must establish their storage capabilities while competing for consistent supply.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) This risk is alleviated by locating a new project at the former sawmill in Camino, which has extensive storage capacity. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**50%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**18**

2.2.2 Relative Accessibility/Delivery Hours and Wait Times

Rationale: The value attributed by suppliers to local competing markets for biomass is often directly related to the degree of flexibility the market provides in terms of delivery hours and the more efficient discharge can occur.

Risk Information: General market understanding is that the wait time expectation is 20 – 30 minutes, however, there is uncertainty related to the actual average wait times suppliers experience while delivering biomass to competitors. The 20 – 30 minute wait time is considered relatively short, and, in the case among most suppliers, increases the operational expectations of a new project. Risk is deemed medium.

Raw Risk Likelihood (RRL) The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**Score** **6**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching *RRL Mitigation (Notch)* This risk is mitigated by the assumption that a new community-sized project will focus its procurement around biomass acquired from forest fuel reduction operations. A community-sized project is unlikely to experience long wait times. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 75%.	**Notch** **75%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 9 out of 100.	**Score** **9**

2.2.3 Relative Specification Advantages

Rationale: When choosing a market for biomass feedstock, suppliers not only look at price but also at relative quality requirements or specifications. It is important to understand feedstock quality specifications for competing markets within the BDO Zone in order to accurately quantify the risk that competitors can exert on the Issuer's supply chain.

Risk Information: Although there is uncertainty regarding exact feedstock specs current competitors accept, the general market knowledge is that the competitors in the region require and maintain high-quality standards for supplied feedstocks. These established specifications create market clarity regarding acceptable material characteristics, contamination limits, and processing requirements. A new project can effectively adopt these existing standards without facing competitive disadvantages from specification differences. This standardization shows a low risk (but not very low due to the uncertainty) regarding quality specification competition, with minimal impact anticipated on feedstock procurement for new entrants in the BDO Zone.

Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed low, therefore the RRI is 4 out of 10.	**Score** **4**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**Score** **16**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**Score** **16**

2.2.4 Demand for Competitors' Products

Rationale: Increased demand for the competitor's final product can cause increased demand for feedstock by the competitor. For example, an increased demand for wood pellets due to high energy prices in Europe or for biofuels due to a favorable clean fuels policy can cause increased pellet/biofuel production by competing markets. Thereby driving demand for feedstock within a BDO Zone.

Risk Information: Most identified competitors for woody biomass produce power or combined heat and power. Therefore, the expected increases of demand for biomass power increase the risk related to woody biomass availability and pricing. With current state-level policies being driven by the need to manage the growing volume of forest biomass generated from fuel reduction treatments, the state has already started implementing laws intended to mandate utilities to increase procurement of biomass power. These include SB 1109 (2022), which extended and expanded requirements for electric utilities to procure energy from biomass facilities, particularly those using forest waste from high-hazard fire zones. In July 2025, the California Public Utilities Commission (CPUC) approved Resolution E-5288 to enforce this, mandating investor-owned utilities (IOUs) to extend existing Bioenergy Renewable Auction Mechanism (BioRAM) contracts or procure new ones. BioRAM specifically requires utilities to buy power from biomass plants fueled by wildfire-related waste. Another important law that is likely to increase demand for biomass power are AB 706 (2025), which has been introduced but still pending (as of August 2025). Finally, CAL FIRE, the California Energy Commission (CEC), and the U.S. Forest Service, released the Joint State-Federal Biomass Utilization Strategy (April 2025), which is also likely to increase demand on biomass power.

In terms of wood pellets and fuel wood chips, particularly for industrial and residential heating applications, the demand continues to expand globally, driving production increases. This growing demand directly affects feedstock requirements for these facilities, potentially constraining availability for new entrants.

Due to the expected increase in demand for competitors' products, this risk indicator is deemed high.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	**8**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	**8**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 64 out of 100.	**64**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) The risk is mitigated by the assumption that a new project entrant will be a community-scale facility utilizing wildfire fuel treatment material. As such, the new entrant would significantly benefit from the same policies driving the demand for biomass power. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**50%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**32**

CATEGORY 3.0: SUPPLY CHAIN RISK

3.1 Risk Factor: Feedstock Availability

3.1.1 Biomass Availability Multiple (BAM)

Rationale: Biomass Availability Multiple (BAM) indicates the degree of redundancy in an Issuer's supply chain in relation to the rated quantity in the BDO Zone. BAM is the mean ratio of biomass feedstock available to a project in relation to delivered cost, divided by the Issuer's mean rated quantity. BAM is a strong indicator of supply chain resilience when stressed by a supply shortage and/or supplier breach. BAMs of 1.5 or higher are generally signals of lower feedstock risk for new projects in BDO Zones.

Risk Information: A Biomass Availability Multiple (BAM) factor of 3.0 was applied to the available quantities of Pulpwood and Forest Residues to meet the overarching assumption of a small-scale community bioeconomy. A BAM of 3.0 also accounts for uncertainty in the accuracy of existing inventory, scale-up readiness, historical harvesting practices and volumes, and sudden changes in supply and demand. However, once supply chains for the envisioned local bioeconomy were established, additional volumes will be available for expansion. This conservative multiplier provides reasonable supply redundancy for new projects in the BDO Zone. This methodology implies a very low risk regarding feedstock volume projections, with minimal impact anticipated on actual supply security for new projects.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

3.1.2 Feedstock Supply Curve/Marginal Cost Curve

Rationale: The greater the feasible transport distance, the more feedstock is accessible to the Issuer, but at a higher delivered cost. The feedstock supply curve, sometimes referred to as the marginal cost curve, is a function of feedstock availability over its cost, which is primarily, but not exclusively, a function of distance. The feedstock supply curve is used to determine the availability of redundant feedstock at various price points, as well as the cost of replacing feedstock with substitutes located at different distances.

Feedstock cost curves are useful in determining supply chain resilience; they provide information about the cost of feedstock availability in times of supply disturbance. Biomass supply chains are prone to supply disturbances over time; suppliers can become insolvent, or weather events can temporarily disrupt feedstock availability. When a disturbance occurs, the Issuer may need to source replacement feedstock from different suppliers at different locations and at different costs. A biomass supply curve indicates quantities of feedstock available at various price levels from suppliers generally located further away than the core supplier.

Risk Information: To evaluate availability of Pulpwood and Forest Residue by delivered price and distance to Camino, comprehensive supply/marginal cost curves were constructed (Figure E-7). The analysis indicates that rated quantities of Pulpwood and Forest Residues could be sourced from relatively short distances, not exceeding 50-mile drive. The curves further demonstrate that the rated price ranges could make available significant additional volumes during supply disruptions, providing important redundancy. This supply distribution indicates a very low risk regarding feedstock accessibility within economic transport distances, with minimal impact anticipated on supply security during normal operations.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

3.1.3 Seasonal Feedstock Supply Variation

Rationale: Biomass supply can present significant seasonal variations. Seasonal supply variations, combined with limitations associated with longer-distance transportation and storage, can lead to BDO Zone biomass supply imbalances,[29] which can manifest in shortages and higher costs for Issuers.

Risk Information: Logging and fuel reduction operations at higher elevations experience seasonal constraints due to snow accumulation, affecting biomass availability during winter months (December to February). This seasonality introduces timing challenges for maintaining consistent supply throughout the year. However, the assessment notes that lower elevation areas remain accessible during winter months, providing alternative harvesting zones during seasonal constraints. This geographic diversity suggests a low risk regarding seasonal supply fluctuations, as logging contractors are capable of adjusting to these seasonal challenges.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)*	**NN**

[29] Golecha & Gan, 2016.

No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100. **16**

3.1.4 Year-to-Year Variation in Feedstock Availability

Rationale: Biomass can have significant year-to-year supply variations due to variability in yield from biomass harvesting operations.
Risk Information: The volatility in annual harvesting levels introduces considerable uncertainty for long-term feedstock planning and price stability for projects in the BDO Zone. The significant fluctuation of timber harvest volumes in the Supply Zone, as illustrated in Figure E-6, creates planning challenges for operations requiring consistent annual feedstock volumes. These historical variations stem from market conditions, policy changes, extreme weather events, and forest health issues. This pattern of annual variability presents a medium risk regarding supply predictability, with corresponding impact on long-term supply agreement structures and inventory requirements.
Raw Risk Likelihood (RRL) **Score** The risk likelihood is deemed medium, therefore the RRL is 6 out of 10. **6**
Raw Risk Impact (RRI) **Score** The risk impact is deemed medium, therefore the RRI is 6 out of 10. **6**
Gross Risk Indicator (GRI) **Score** The Gross Risk Indicator (RRL X RRI) is 36 out of 100. **36**
Mitigation/Notching **Notch** *RRL Mitigation (Notch)* **50%** The abovementioned supply fluctuations could be easily mitigated through building up biomass inventory at the existing sawmill site in Camino. Moreover, the overarching assumption of developing a local community bioeconomy based on forest restoration and fire remediation activities, further reduces this risk. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100. **18**

3.2 Risk Factor: Historical Issues

3.2.1 Historical Feedstock Price Variations

Rationale: If the historical feedstock price shows volatility, then the risk of future price fluctuation is elevated.
Risk Information: Forisk 2014-25 historical market prices for the US Northwest Region (Figure E-10) indicate fluctuating Pulpwood and Forest Residue prices, especially in the past five years (it is noted that more accurate and local data could not be found, so the Northwest-wide pricing indication is used as a proxy for general trends). Price volatility may introduce planning challenges for projects dependent on stable feedstock costs. The historical price behavior implies a low-medium risk regarding cost predictability, with corresponding impact on financial modeling and contract structures for new projects in the BDO Zone. On the other hand, the price for wildfire fuel treatment material is expected to remain stable, as it is not driven by supply and demand dynamics, but rather by operational costs and available funding mechanisms.

Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed low, therefore the RRI is 4 out of 10.	**Score** **4**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**Score** **16**
Mitigation/Notching *RRL Mitigation (Notch)* The risk is mitigated by the assumption that a new project entrant will be a community-scale facility utilizing wildfire fuel treatment material. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 8 out of 100.	**Score** **8**

3.2.2 Historical Demand for Feedstock in the BDO Zone

Rationale: If a BDO Zone does not have a history of developed large-scale feedstock procurement, suppliers may not have sufficient expertise in feedstock production to ensure reliable supply, especially in the early years. This can be particularly true for Forest Residues, where, typically, the infrastructure for collection, processing, and delivery is immature.

Risk Information: Substantial long-term expertise exists in supplying the rated quantities of Pulpwood and Forest Residues within the BDO Zone. This established demand history indicates mature supply chains with proven capability to deliver consistent biomass volumes for similar applications. In addition, many of the biomass power and CHP plants have been providing markets for wildfire fuel treatment material. The presence of historical demand patterns reduces uncertainty regarding supplier capability and market development requirements. This market maturity presents very low risk regarding supply chain readiness, with minimal impact anticipated on ramp-up timelines for new projects in the BDO Zone, given the rated quantity.

Raw Risk Likelihood (RRL) The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**Score** **2**
Raw Risk Impact (RRI) The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**Score** **2**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**Score** **4**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**Score** **4**

3.2.3 History of Production/Feedstock is a New/Secondary Crop or By-Product

Rationale: If the feedstock is a new/secondary crop or a by-product, suppliers may either lack sufficient experience to mitigate risk or be unable to react to such risk. Secondary crops or by-product producers may be less likely to prioritize production.

Risk Information: None of the rated feedstocks represents new material for regional suppliers. Risk is low.

Raw Risk Likelihood (RRL) The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**Score** **2**
Raw Risk Impact (RRI) The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**Score** **2**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**Score** **4**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**Score** **4**

3.3 Risk Factor: Non-Weather Based Externalities

3.3.1 Consumer Price Index (CPI) and Producer Price Index (PPI)

Rationale: CPI and PPI can impact feedstock cost of harvest and collection over time. Sensitivities to worst-case scenarios should be run.

Risk Information: Temporary yet significant rises in CPI and PPI, as observed in 2020-2022,[30] substantially impacted biomass delivery prices, due to pandemic disruptions and global supply chain challenges. While economic indicators suggest gradual stabilization, the recent volatility demonstrates vulnerability to macroeconomic pressures. Although CPI and PPI fluctuations of 2020 – 2022 are considered an outlier in a general trend, they do indicate the vulnerability of biomass supply chains to CPI and PPI fluctuations, a these economic indicators affect multiple cost components in the biomass supply chain, including labor, fuel, equipment, and maintenance expenses. Consequently, risk associated with CPI and PPI is deemed medium.

Raw Risk Likelihood (RRL) The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**Score** **6**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching *RRL Mitigation (Notch)* The risk is mitigated by the assumption that a new project entrant will be a community-scale facility utilizing wildfire fuel treatment material. Although the costs associated with conducting operations in fuel treatment	**Notch** **50%**

[30] www.bls.gov/charts/consumer-price-index/consumer-price-index-by-category-line-chart.htm; www.bls.gov/charts/producer-price-index/final-demand-1-month-percent-change.htm

are subjected to CPI and PPI, they are mitigated by the wildfire fuel treatment funding mechanisms and general regulatory environment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.
Loaded RI Score — **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100. — **18**

3.3.2 Currency Risk

Rationale: Where feedstock is purchased in a currency different than that which a new bio-based plant will locate in a BDO Zone, currency exchange rates and volatility can constitute risk exposure. BDO Zones that cross the US-Canada border, for example, which intake feedstock from both countries, are exposed to such currency risk.
Risk Information: Not relevant to this BDO Zone as all supply and operations remain within the domestic U.S. market.
Raw Risk Likelihood (RRL) — **Score** The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR). — **NR**
Raw Risk Impact (RRI) — **Score** The risk impact is deemed not relevant, therefore the RRI is not rated (NR). — **NR**
Gross Risk Indicator (GRI) — **Score** The Gross Risk Indicator (RRL X RRI) is not rated. — **NR**
Mitigation/Notching — **Notch** The Total Notch (RRL Notch) X (RRI Notch) is NR (Not Rated). — **NR**
Loaded RI Score — **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated. — **NR**

3.3.3 Border Risk

Rationale: Where feedstock is transported cross-border to another country, risk exposure to border closures and crossing delays becomes present. The availability of trucks willing to do cross-border runs is limited, which can decrease supply chain flexibility and resilience. Plants near the US-Canada border, which intake feedstock from both countries, are exposed to these risks.
Risk Information: Not relevant to this BDO Zone.
Raw Risk Likelihood (RRL) — **Score** The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR). — **NR**
Raw Risk Impact (RRI) — **Score** The risk impact is deemed not relevant, therefore the RRI is not rated (NR). — **NR**
Gross Risk Indicator (GRI) — **Score** The Gross Risk Indicator (RRL X RRI) is not rated. — **NR**
Mitigation/Notching — **Notch** The Total Notch (RRL Notch) X (RRI Notch) is NR (Not Rated). — **NR**
Loaded RI Score — **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated. — **NR**

3.3.4 Temporary Externality-Driven Markets for Feedstock

Rationale: Alternative, non-traditional, externality-driven competitors for feedstock can drive feedstock demand (and cost) in unusual circumstances.

Risk Information: Not relevant to this BDO Zone as woody biomass lacks alternative use cases that would create temporary market competition during external disruptions.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	**NR**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	**NR**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is not rated.	**NR**
Mitigation/Notching	**Notch**
The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated.	**NR**

3.4 Risk Factor: Risks Related to Feedstock Production, Harvest, and Collection

3.4.1 Harvest & Collection Practices & Schedules

Rationale: Differences in harvest timing and practices used can create risk to both the quantity and quality of feedstock. For example, feedstock harvested by different suppliers in different windows can undergo varying levels of exposure to sun, wind, and moisture, leading to variations in delivered feedstock quality. For example, unsightly clear-cuts and slash piles (even on plantation forests and especially when located near communities) can provoke unwanted public backlash even when suitable and sustainable replanting regimes are followed.

Risk Information: The qualities and quantities of Pulpwood and Forest Residue generated by salvage and wildfire fuel treatment reduction practices exhibit heterogeneity that could disrupt production of high-quality biomass products. This variability is further amplified when feedstocks originate from different altitudes and forest types, creating challenges for quality standardization and supply planning. Differences in harvesting techniques, processing methods, and seasonal timing contribute to inconsistencies in moisture content, contamination levels, and fiber characteristics. These operational variations trigger medium risk regarding feedstock quality consistency, with corresponding impact on processing requirements and conversion efficiency. This variability is often overlooked by project proponents and may lead to significant cost increases to establish rigorous feedstock quality control and logistics.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**

The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**36**

3.4.2 Harvesting & Collection Equipment

Rationale: Different types of harvesting and collection equipment used by suppliers in a BDO Zone can have a significant impact on the quality and availability of feedstock. Using different types and combinations of harvesting, collection, and processing equipment among suppliers can lead to non-homogeneous feedstock. Equipment that is not designed specifically for biomass harvesting and collection can increase feedstock quality risks.

Risk Information: Forest operations in the Supply Zone employ modern mechanized forestry equipment, including harvesters, skidders, processors, and loaders. Additionally, high-productivity grinding equipment exists throughout the region. This modern equipment inventory ensures efficient harvesting, collection, and processing operations capable of meeting quality requirements for potential projects. The presence of appropriate technology and machinery indicates low likelihood of equipment-related quality issues. Some risk still remains due to the nature of wildfire fuel treatment process, which tends to result in more contaminated material than traditional, roundwood-derived biomass.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

3.4.3 Variation in Densification Methods Among Different Suppliers

Rationale: The shape and density of the unit in which feedstock is supplied can impact feedstock cost and quality. Standard feedstock densification modes for biomass consist of bales, pellets, cubes, chips, or grindings. The size of wood fiber processed in a grinder is less homogenous than if a chipper is used.

Risk Information: Forest biomass harvested in the Supply Zone is produced in formats acceptable to all wood processing companies in the region. No alternative densification methods beyond standard chipping/grinding are currently required or demanded in the BDO Zone. This standardization in processing methods contributes to consistency in material handling characteristics and physical properties. The established processing approach presents low risk regarding format compatibility, however, some risk remains with regards to the wildfire fuel treatment processes (which can slightly differ in the equipment used from the traditional forestry operations) and resulting feedstock.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**

Mitigation/Notching	Notch
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

3.4.4 Availability of Labor for Feedstock Production

Rationale: Skilled labor shortages can be difficult to remedy in the short term. The availability of suitable labor in an area can impact the ability to procure sufficient feedstock quantities on required schedules. Labor risks are higher where supply chains are not yet active or for Issuers for whom large feedstock requirements or the development of new (or expanded) supply chains demand significant additions to the local labor force.

Risk Information: As detailed in Section B – Operational Considerations, the forestry and logging workforce in the Supply Zone exhibits an aging demographic trend with limited recruitment of younger workers into the industry. A shortage of truck drivers was also reported in the region. While long-term labor availability presents a potential concern, immediate workforce constraints appear unlikely. This labor market condition presents a medium risk regarding the long-term supply capability, with minimal impact anticipated on initial operations for new projects in the BDO Zone.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) Several funding programs aim at improving the availability of workforce in the forest sector, including CAL FIRE Wood Products and Bioenergy Business and Workforce Development Grants, California Conservation Corps (CCC) Forestry Corps Grant Program, California Resilient Careers in Forestry (by U.S. Economic Development Administration). These, and potentially other, funding programs aim at mitigating the risk associated with forestry workforce attrition. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**50%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**18**

3.5 Risk Factor: Transportation

3.5.1 Feedstock Transportation Costs

Rationale: Transportation can be one of the most significant cost components of biomass supply chains. The average transport cost and percentage of total feedstock cost attributable to transport should be known.

Transport distances of 50-75 miles for biomass feedstocks are typical, but larger distances can be common. Where the average transport distance from suppliers to Issuers is high, the supply chain is subject to greater sensitivities to risks, such as increases in diesel cost, weather impacts, mechanical breakdown, and the demand for scarce feedstock from competitors closer to the source. Understanding average transport distance can help flag higher-risk BDO Zones where transport distance materially exceeds the average.

Risk Information: Transportation costs account for approximately 35% of total biomass delivered price depending on feedstock type, distribution patterns in the Supply Zone, and regional supply/demand dynamics. The supply curves presented in Figure E-7 indicate that rated quantities of Pulpwood and Forest Residues could be sourced from distances of up to 50 miles. These transportation economics fall within standard industry parameters for similar operations and the risk was assessed as low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

3.5.2 Diesel Cost Impacts

Rationale: Changes in diesel costs impact transport costs over time. Sensitivities to worst-case scenarios should be run.

Risk Information: Although average diesel prices declined considerably from $6.27/gal in 2023 to $4.80/gal in 2025 (Figure E-9), the historical price trend shows an upward trajectory. Fuel price volatility poses substantial risk to biomass operations given the relatively low bulk density of some biomass types (i.e., hog fuel and chips) and potentially long transportation distances. This cost sensitivity directly affects transportation economics, potentially disrupting supply chain reliability and price stability. While current price trends appear to be stabilizing, the historical volatility indicates medium risk to operating cost stability, with corresponding impact on overall project economics.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)*	**NN**

No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100. — **36**

3.5.3 Transportation of Feedstock Requires Specialized Equipment

Rationale: Requirements for specialized transport equipment (e.g., walking-floor trailers) can increase supply chain risk. Where there is low availability of required transportation equipment, equipment owners have increased leverage over transportation prices, and supply chain resiliency can be lower.
Risk Information: As presented in Section B - Operational Considerations, five logging trucks and four additional chip vans would be necessary to transport the rated quantities of Pulpwood and Forest Residues to Camino. Outreach to local forestry professionals confirmed availability of transportation in the region, thus the risk is deemed very low.
Raw Risk Likelihood (RRL) — **Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10. — **2**
Raw Risk Impact (RRI) — **Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10. — **2**
Gross Risk Indicator (GRI) — **Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100. — **4**
Mitigation/Notching — **Notch**
RRL Mitigation (Notch) — **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100. — **4**

3.5.4 Delivery Routes through Local Communities

Rationale: Transportation of biomass can become a nuisance to local communities, especially if a large number of trucks pass through residential and school areas. Local communities often have the power to force regulations regarding truck transport, impeding the ability of BDO Zone suppliers to transport feedstock.
Risk Information: To deliver the rated quantity of Pulpwood and Forest Residue, it is estimated that 21 trucks per day would need deliver feedstock (106,000 bdt/yr / 365 days / 14 bdt/truckload). Depending on new facility's operational hours, this can result in 1 – 2 deliveries per hour. Such delivery frequency in and around Camino, especially given local support for forest biomass utilization, is associated with low risk of community backlash due to increased traffic.
Raw Risk Likelihood (RRL) — **Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10. — **4**
Raw Risk Impact (RRI) — **Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10. — **4**
Gross Risk Indicator (GRI) — **Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100. — **16**
Mitigation/Notching — **Notch**
RRL Mitigation (Notch) — **NN**

No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100. — **16**

3.5.5 Transportation Regulations & Local Weight Limits

Rationale: In many BDO Zones, transportation is regulated based on seasonal road conditions. These regulations (e.g., "frost laws") often take the form of weight restrictions or limits on the number of trucks allowed on roads. Such regulations can impede the project's ability to source sufficient feedstock or increase the cost of doing so at certain times of the year.

Risk Information: Road weight limits exist throughout the region, particularly in mountainous terrain during wet and snowy seasons. Many forest roads lack design specifications for heavy truck traffic, potentially requiring upgrades to sustain increased biomass transport volumes.[31] These infrastructural and regulatory constraints may limit accessibility during certain periods or require route modifications that increase transportation costs. These transportation restrictions present medium risk to logistics planning, with corresponding impact on delivery reliability and transportation economics for new projects in the BDO Zone.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**36**

3.5.6 Road Infrastructure

Rationale: Feedstock cost and availability can be a function of road infrastructure, in particular the accessibility the infrastructure provides to feedstock. Issues with road networks will translate directly to risks to feedstock supply.

Risk Information: Outreach during the assessment identified poorly developed forest road networks in some areas, particularly within the El Dorado National Forest. Biomass transport faces seasonal challenges from snow and ice in mountain regions, potentially disrupting delivery schedules to processing facilities.[32] Additionally, accessing salvaged biomass will require construction of new roads, necessitating increased public funding. While these infrastructure

[31] Tahoe-Central Sierra Initiative. TCSI Capacity Report, August 2024; Butte County Biomass Feedstock Feasibility Study, 2023
[32] Sierra Business Council, Logistics Study of a Biomass Facility for the Lake Tahoe Region (2023).

limitations present meaningful challenges, the assessment indicates that most road infrastructure remains appropriate for biomass transportation, resulting in medium risk regarding access reliability.
Raw Risk Likelihood (RRL) **Score** The risk likelihood is deemed medium, therefore the RRL is 6 out of 10. **6**
Raw Risk Impact (RRI) **Score** The risk impact is deemed medium, therefore the RRI is 6 out of 10. **6**
Gross Risk Indicator (GRI) **Score** The Gross Risk Indicator (RRL X RRI) is 36 out of 100. **36**
Mitigation/Notching **Notch** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100. **36**

3.5.7 Transportation Redundancy

Rationale: Transport equipment redundancy is important for dealing with seasonally variable feedstock supplies as well as the risk of equipment breakdowns.
Risk Information: As detailed in Section B – Operational Considerations, supplying the rated quantities will require five logging trucks and four chip vans. Outreach confirmed sufficient logging trucks and trucks with chip vans exist to support transportation of rated quantities of Pulpwood and Forest Residues. The risk is deemed very low.
Raw Risk Likelihood (RRL) **Score** The risk likelihood is deemed very low, therefore the RRL is 2 out of 10. **2**
Raw Risk Impact (RRI) **Score** The risk impact is deemed very low, therefore the RRI is 2 out of 10. **2**
Gross Risk Indicator (GRI) **Score** The Gross Risk Indicator (RRL X RRI) is 16 out of 100. **4**
Mitigation/Notching **Notch** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100. **4**

3.6 Risk Factor: Supply Chain Resiliency

3.6.1 Size, Number, and Location of Suppliers

Rationale: In general, a supply portfolio involving multiple suppliers of various sizes is important for ensuring steady and uninterrupted feedstock supply with minimal price fluctuations. If a small number of large suppliers provides a high proportion of total feedstock, a disruption or supplier breach will have greater impact on the supply chain. In such cases

the risk of disruption is lower, but the impact of those disruptions is higher. Conversely, many small suppliers are less likely to have the capacity to withstand internal disruptions and thus may be more likely to breach. Here, risk of disruption is higher, but its likely impact is lower. The number of suppliers as well as the ratio of small to large suppliers should be optimized. There is no pre-determined number or optimal ratio of suppliers, although having too many or too few can both pose higher degrees of risk.

Risk Information: The analysis in Section B indicates that only one sawmill currently operates in the Supply Zone, located in close proximity to or co-located with its customers (i.e., CHP and biomass power plants). Approximately eight to ten logging crews of various sizes were reported in the region. While this supplier base presents concentration risk, outreach indicated that additional logging crews would likely become available if a project in Camino required the rated quantities of Forest Residues and Pulpwood. In addition, several forest restoration and fire remediation activities are planned in close proximity to Camino, especially in the El Dorado National Forest. This supplier distribution pattern suggests low risk regarding supply diversity, with corresponding impact on supply chain resilience for new projects in the BDO Zone.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

3.6.2 Suppliers Subject to Same External Risk Factors

Rationale: When a single risk event can impact the feedstock production ability of all (or most) suppliers, then feedstock risk is higher and supply chain resiliency is lower. Resilience is maximized when biomass supply chains exhibit diversity in spatial location (i.e., geography), production practices, and other elements of supply chain structures such that the impact of single high-risk events have varying impacts on suppliers.

Risk Information: Several common risk factors could simultaneously affect multiple suppliers in the region, including reduced sawlog availability, fluctuating housing starts/lumber prices, and inconsistent funding for salvage/forest restoration activities in public forests. These systemic risks have historically impacted the regional forest industry and will likely continue to create challenges. The exposure of the supplier base to common external factors triggers a medium risk to supply chain resilience, as disruptions tend to affect multiple suppliers simultaneously rather than impacting them independently. This systemic vulnerability reduces the effectiveness of supplier diversification as a risk mitigation strategy.

It is noted that the likelihood of funding for fuel fire reduction disappearing is low in the short-term. However, as this risk assessment takes a 20-year perspective, the long-term uncertainty with government funding in general deems this risk medium.

Raw Risk Likelihood (RRL)	**Score**

The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**Score** **36**

3.6.3 Land Ownership Structures

Rationale: The ownership (or control) of the land base on which feedstock is produced can have a significant impact on the Issuer's feedstock risks. Typically (but not always), state or federally owned forests have a higher risk profile from the biomass supply security perspective than private forests as they are subjected to changing government policies and environmental group pressures.

Risk Information: As presented in Section B, timberland in the Supply Zone is predominantly publicly owned. The limited diversity in land ownership could reduce flexibility in sourcing strategies and increase vulnerability to regulatory or policy shifts. The governance structure for these public lands introduces additional complexity and potential constraints compared to privately owned timberlands, with some impact on harvesting authorization and timing. This ownership concentration indicates a medium risk to stable biomass supply, as federal policy changes, funding allocations, environmental restrictions, or permitting delays can simultaneously affect large portions of the resource base.

Raw Risk Likelihood (RRL) The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**Score** **6**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching *RRL Mitigation (Notch)* This risk is mitigated by the rated quantities of Pulpwood and Forest Residue which can be readily available from both private and public forestlands. Moreover, as mentioned above, recent national and state legislative measures incentivize biomass harvesting in National and State forests, thus, further reducing this risk. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**Score** **18**

3.7 Risk Factor: Climate and Natural Risks

3.7.1 Seasonal Weather Impacts on Feedstock Supply

Rationale: Seasonal weather impacts are defined as those deriving from natural weather variations (e.g., spring thaws, rainy seasons, or dry seasons—as opposed to singular weather events like fires, droughts, or hurricanes). Seasonal weather changes can be a significant risk factor affecting feedstock availability, quality, and price.

Given the significant influence that weather has on multiple aspects of growing, harvesting, and transporting biomass, it is difficult to predict the availability of biomass at a specific location at different points in the future with a high degree of certainty. However, it is still possible, using past data and statistical models, to generate reasonable upper/lower bound estimates of biomass production in any given year in a wider supply zone. Such estimates are essential in assessing feedstock risk and enable accurate assessment of the efficacy of the Issuer's mitigation methods.

Risk Information: Timber harvesting and fuels reduction operations typically pause from late November to early April due to rain, snow, and wet ground conditions.[33] This seasonality introduces timing challenges for maintaining consistent supply throughout the year. However, lower elevation areas remain accessible during winter months, providing alternative harvesting zones during seasonal constraints. Moreover, logging contractors are experienced and capable of adjusting to these seasonal challenges, which suggests a low risk regarding seasonal supply fluctuations.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

3.7.2 Long-Term Weather and Climate Trends

Rationale: In certain BDO Zones, climatic trends and significant potential changes to future weather patterns can create feedstock risk.

Risk Information: The region experiences droughts and temperature shifts that are altering tree growth rates and mortality patterns, affecting long-term biomass availability. Increased tree mortality from insects, disease, and drought stress leads to the accumulation of dead trees as fire hazards. Post-wildfire landscapes exhibit greater vulnerability to landslides and erosion, making some burned areas unsafe for biomass removal. Additionally, heavy rainfall events are becoming more frequent, increasing the likelihood of road washouts and access limitations.[34] These long-term climate trends present high risk to sustainable biomass production and availability over typical project lifespans, with medium impact on long-term supply security mitigated by wildfire fuel mitigation efforts.

[33] Loyalton Biomass Facility, Loyalton Resource Supply Assessment Report Final (2021)
[34] Sierra Business Council, The Forest Management Opportunity Final Report (2022)

Raw Risk Likelihood (RRL) The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	**Score** **8**
Raw Risk Impact (RRI) The risk impact is deemed high, therefore the RRI is 8 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 48 out of 100.	**Score** **48**
Mitigation/Notching *RRL Mitigation (Notch)* The overarching assumption of a community bioeconomy located in Camino has the potential to reduce this risk by making available feedstocks from forest restoration and fire remediation activities planned to mitigate these climate issues. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 32 out of 100.	**Score** **24**

3.7.3 Forest Fire

Rationale: Forest fires, especially when occurring on a large scale, destroy feedstock and create shortages.

Risk Information: Extreme wildfire years (e.g., 2020, 2021) have resulted in delayed and canceled logging projects throughout the region.[35] Local forestry professionals anticipate that this situation will persist and potentially intensify due to climate change, fuel accumulation, and forest health issues. Wildfires directly destroy potential feedstock, damage infrastructure, and can restrict access to harvesting areas for extended periods. The increasing frequency and severity of wildfire events present high risk to consistent biomass supply, with significant impact on both short-term operations and long-term resource availability for projects in the BDO Zone.

Raw Risk Likelihood (RRL) The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	**Score** **8**
Raw Risk Impact (RRI) The risk impact is deemed high, therefore the RRI is 8 out of 10.	**Score** **8**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 64 out of 100.	**Score** **64**
Mitigation/Notching *RRL Mitigation (Notch)* See 3.7.2. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 32 out of 100.	**Score** **32**

[35] Stanford Center for Carbon Storage, The Forest Management Opportunity: Pathways to Carbon Neutrality in California (April 2022)

3.7.4 Risk of Infestation

Rationale: Risk of future infestation, including its estimated consequences on feedstock supply, should be calculated into the overall risk profile. Since forest insect populations are influenced by environmental conditions, future changes in climate can be expected to significantly alter the outbreak dynamics of certain forest insect species. In some cases, larger and more frequent insect outbreaks may occur, but in other cases, recurring outbreaks may be disrupted or diminished. As the climate continues to change, we can expect more situations, particularly at the margins of tree ranges, where sub-optimal conditions for tree growth and reduced tree vigor can lead to outbreaks of forest insects.

Risk Information: Tree mortality caused by the fir engraver accounted for 77% of detected mortality, while the flat headed fir borer contributed an additional 8% of detected mortality in California in 2022.[36] Additionally, pine beetle infestations represented 11% of detected mortality in California during the same period. These insect outbreaks are expected to continue and potentially intensify as a result of increasing average annual temperatures and extreme weather events associated with climate change. This forest health challenge indicates a low-medium risk to feedstock quality and quantity, with corresponding impact on long-term resource availability for biomass projects, especially for the value-added sub-sector producing high-quality/high-value products.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**24**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**24**

3.7.5 Risk of Hail

Rationale: Hail has negligible impact on forestry biomass. However, there is much uncertainty about the effects of anthropogenic climate change on the frequency and severity of extreme weather events like hailstorms and their subsequent economic losses. Some studies indicate a strong positive relationship between hailstorm activity and hailstorm damage, as predicted by minimum temperatures using simple correlations. This relationship suggests that hailstorm damage may increase in the future if global warming leads to further temperature increases.

Risk Information: Not relevant to this BDO Zone.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	**NR**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	**NR**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is not rated.	**NR**

[36] www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd1088607.pdf

Mitigation/Notching	Notch
The Total Notch (RRL Notch) X (RRI Notch) is NR (Not Rated).	NR
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated.	NR

3.7.6 Risk of Flood

Rationale: Floods can cause catastrophic disruption and delay in feedstock supply. Where there is a high risk of flood and thus a negative impact on feedstock supply, the BDO Zone rating should account for this risk.

Risk Information: Post-wildfire landscapes demonstrate increased vulnerability to landslides and erosion, making some burned areas unsafe for biomass removal. Heavy rainfall events are becoming more frequent, increasing the likelihood of road washouts and access limitations for harvesting and transportation operations.[37] However, outreach conducted during the assessment indicated that flooding events are typically temporary and localized rather than widespread throughout the Supply Zone. Although the likelihood of road washouts is there, the impact to biomass supply chains is very low.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	4
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 8 out of 100.	8
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 8 out of 100.	8

3.7.7 Risk of Drought

Rationale: Droughts can cause significant disruptions to feedstock supplies across entire BDO Zones for extended periods of time. Tree species are adapted to specific moisture conditions. Having less water available through drought has a range of negative impacts on the health of forest ecosystems. Direct impacts include reduced growth, increased tree mortality, and failure to regenerate. Indirect impacts include reduced ability to defend against insects and disease and increased fire risk. These impacts can affect the availability of wood fiber for an Issuer.

Risk Information: See RI 3.7.2 above regarding long-term weather and climate trends. Prolonged drought conditions increase forest susceptibility to wildfire ignition and spread while simultaneously enhancing vulnerability to insect infestation and disease. These compounding effects can significantly alter forest composition, growth rates, and mortality patterns throughout the Supply Zone. While immediate supply disruptions may be limited, the cumulative impact on forest health triggers medium risk to long-term resource availability, with corresponding implications for sustainable harvesting levels and feedstock quality.

Raw Risk Likelihood (RRL)	Score

[37] Sierra Business Council, The Forest Management Opportunity Final Report (2022)

The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching *RRL Mitigation (Notch)* The overarching assumption of a community bioeconomy located in Camino has the potential to reduce this risk by making available feedstocks from forest restoration and fire remediation activities planned to mitigate this issue. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**Score** **18**

3.7.8 Risk of Hurricanes, Tornadoes, and Strong Winds

Rationale: Hurricanes, tornadoes, and strong winds can destroy timber stands and feedstock piles. They can also delay forestry operations. Hurricanes and tornadoes can indirectly cause temporary shortages of available transportation as available trucking moves to handle higher-value disaster-related contracts. For example, Katrina cleanup limited the availability of live-bottom trailers in the North and South East of the US for several months as truckers shifted operations to handle more lucrative government contracts. Although scientists are uncertain whether climate change will lead to an increase in the number of hurricanes, warmer ocean temperatures and higher sea levels are expected to intensify their impacts. Recent analyses conclude that the strongest hurricanes occurring in some BDO Zones, including the North Atlantic, have increased in intensity over the past two to three decades.

Risk Information: Except during severe forest fires, no significant wind events were reported in the region that could increase the risk of diminished supply to a project in Camino. The geographic location and topographical characteristics of the Supply Zone limit exposure to hurricanes or major tornado activity. While localized wind events may cause isolated damage, these incidents typically remain contained and manageable within normal operations. This limited exposure to major wind events indicates very low risk regarding supply disruptions, with minimal impact anticipated on feedstock availability or quality for new projects in the BDO Zone.

Raw Risk Likelihood (RRL) The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**Score** **2**
Raw Risk Impact (RRI) The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**Score** **2**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**Score** **4**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**

Loaded RI Score	Score
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

3.7.9 Risk of Low Temperatures

Rationale: Low temperatures can cause crop failure, leading to shortages of biomass. Additionally, low temperatures can have adverse impacts on the operations of feedstock processing equipment in Northern BDO Zones.

Risk Information: Winter temperatures in the region regularly drop below 40 degrees Fahrenheit, occasionally causing short operational delays due to equipment maintenance requirements. However, local suppliers have extensive experience operating in cold weather conditions and have developed appropriate mitigation strategies including modified maintenance schedules, cold-weather lubricants, and operational protocols. The predictable and manageable nature of cold weather impacts suggests low risk to overall biomass supply, though it may affect seasonal harvesting schedules and equipment efficiency during winter months in higher elevation areas.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	4
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	4
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	16
Mitigation/Notching	**Notch**
The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

3.8 Risk Factor: Political and Social

3.8.1 Government Subsidies for Feedstock Production or Utilization

Rationale: Feedstock that is directly subsidized through government programs can pose greater long-term risk than feedstock that is not. Subsidies may be subject to amendment or repeal, sometimes with minimal notice.

NOTE: This risk indicator refers to direct feedstock subsidies only; it does not apply to government subsidies that pertain indirectly to the Issuer's operations, such as Loan Guarantees, or to the markets for products produced by the Issuer.

Risk Information: Non-timber forestry objectives, including wildfire mitigation, watershed protection, and ecological restoration depend on government subsidies. USFS funds available for forest management programs exhibit significant interannual volatility.[38] In addition BioRAM funding provides subsidies to existing biomass plants, introducing investment risk for biomass supply chains.[39] This situation is further complicated by existing biomass power plants under BioRAM contracts (e.g., Rio Bravo Rocklin, SPI Lincoln) that already absorb substantial available feedstock, leaving low margins for new projects.[40] However, the above are not direct feedstock subsidies. The rated price ranges in Table B-5 reflect unsubsidized prices which guarantee the availability of rated quantities of Pulpwood and Forest Residues to a project in Camino. Consequently, although no direct subsidies exist, the analysis indicates a medium risk for this indicator, due to dependency on federal appropriations, which remain subject to political priorities and budget constraints for long-term biomass availability from public lands.

Raw Risk Likelihood (RRL)	Score

[38] nationalaglawcenter.org/wp-content/uploads/assets/crs/R43872.pdf
[39] Forest Management Opportunity Report, 2022
[40] TCSI Capacity Report, 2024

The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**Score** **36**

3.8.2 Local, Provincial, & National Laws, Regulations, & Permitting Pertaining to Biomass

Rationale: Feedstock whose production is directly dependent on local, provincial, or national laws or government regulations can pose greater long-term risk than feedstock which is not, since laws and regulations may be subject to amendment or repeal.

If biomass utilization requires specific permits (e.g., percentage removal of Forest Residues, allowable annual cut limits, air emission, storage permits, rights-of-way, overweight permits for trucks, cross-border permitting for shipment of biomass, chain of custody, or certification of sustainability), the likelihood of obtaining such permits and/or complying with permitting requirements should be examined.

Risk Information: As outlined in Section B – Regulatory considerations, access to biomass requires permits, but is generally eased through various exemptions (mainly around fuel reduction programs) and initiatives. The general direction in changing regulatory landscape and permitting at local, state, and federal levels, is positive with regards to access to biomass, and especially fuel reduction material. Some risk remains due to the number of regulations, compared to other BDO Zones where very little or no regulations exist.

Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**Score** **24**
Mitigation/Notching *RRL Mitigation (Notch)* The risk is mitigated through an assumption that a new entrant will utilize mainly wildfire fuel reduction material, which is strongly supported by the current regulatory environment, and will likely remain so in the future. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score	**Score**

The Loaded RI Score ((1-Total Notch) X GRI Score) is 12 out of 100.	12

3.8.3 Backlash Against Biomass Development, Procurement, or Usage in the Region

Rationale: Public backlash against biomass development in the Issuer BDO Zone can directly impact the Issuer's ability to procure, transport, trans-load, store, or utilize feedstock by affecting local policies, regulations, and the Issuer's ability to obtain necessary permitting.

Risk Information: In El Dorado County, located in California's Sierra Nevada region, the prevalent public opinion on biomass removal from forests—encompassing both traditional forestry byproducts (Forest Residues, Pulpwood) and wildfire fuels from treatment programs (Pulpwood Thinning and Salvage)—leans towards support, particularly when framed as a strategy for wildfire risk reduction and forest health improvement. County-led initiatives, such as the Community Wildfire Protection Plan updated in May 2025, reflect community backing for utilizing excess woody biomass to mitigate wildfire risks, reduce air pollution, and support forest restoration. Projects like the Bio-Mass Recycle to Energy 7 County proposal, awarded in July 2025, have progressed with local government and stakeholder support, indicating broad acceptance for biomass utilization to enhance air quality, protect watersheds, and create economic opportunities. However, some opposition exists, primarily from environmental groups concerned that biomass extraction could harm biodiversity, soil health, and carbon sequestration, viewing it as a potential contributor to forest degradation rather than a true wildfire mitigation solution. Overall, support appears dominant in local policy and community wildfire plans, driven by the county's high wildfire vulnerability.

Public opinion has shifted towards stronger support for biomass removal following major wildfires in the Sierra Nevada, such as the Camp Fire (2018), Dixie Fire (2021), and particularly the Caldor Fire (2021), which directly impacted El Dorado County and heightened awareness of fuel accumulation from decades of fire suppression. These events emphasized the dangers of unmanaged forests, leading to greater acceptance of thinning and biomass utilization as resilience strategies. For instance, post-fire studies and initiatives, like California's Wildfire and Forest Resilience Action Plan, have promoted fuel treatments, with public sentiment favoring actions that reduce high-severity fire risks and smoke exposure. In El Dorado County, this is evident in projects like the collaborations with the Eldorado National Forest and the Bio-Mass Recycle to Energy initiative, where community engagement has grown, viewing biomass removal as preferable to uncontrolled burns. Opposition persists among some environmentalists, who argue that post-fire logging can impede natural recovery and biodiversity, but the post-2018 fire shift, particularly post-Caldor, has leaned towards pragmatism, with economic valuations showing benefits like $3,000/ha in water and hydropower savings from treatments.

Generally, we deem the likelihood of social backlash as low, with potential medium impacts, given history of project opposition in Sierra Nevada.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**24**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) The risk is mitigated through an assumption that a new entrant will utilize mainly wildfire fuel reduction material, which is generally supported by the public and stakeholders, and will likely remain so in the future	**50%**
RRI Mitigation (Notch)	

No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 12 out of 100. — **12**

3.8.4 Consent of, and Cooperation with, Indigenous Communities and First Nations

Rationale: Where new project development on or near Indigenous or First Nation land, or where near Indigenous or First Nations exert influence over feedstock producing areas, consent of, and cooperation with, Indigenous communities and First Nations decreases Issuer risk.

Risk Information: In El Dorado County, the Shingle Springs Band of Miwok Indians reside on the Shingle Springs Rancheria, descending from both Miwok and Nisenan peoples.[41] Additionally, the region was traditionally inhabited by Nisenan (Southern Maidu), Miwok, and Washoe tribes.[42, 43] Consent and meaningful participation of Indigenous tribes in California are essential for forestry initiatives involving ancestral lands. Upholding tribal sovereignty and integrating traditional ecological knowledge must form foundational elements in project planning and implementation.[44] Several notable examples of forestry collaborations involving Indigenous tribes in California provide models from which new projects can draw inspiration. These collaborative approaches incorporate traditional ecological knowledge into forest restoration and wildfire management, emphasize culturally prescribed fire practices, and showcase Indigenous-led climate-smart forestry as sustainable land management models.[45] With appropriate collaborative approaches including tribal participation, the risk related to Indigenous relations appears low for properly structured projects.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

[41] Shingle Springs Band of Miwok Indians, "Tribal History," Shingle Springs Rancheria, accessed April 5, 2025, www.shinglespringsrancheria.com/history

[42] Sharon Penny, "In History: Hattie Tom of El Dorado County," Style Magazine, June 24, 2016, www.stylemg.com/2016/06/24/115064/in-history-hattie-tom-of-el-dorado-county

[43] Nevada City Rancheria, "Our History," Nevada City Rancheria Nisenan Tribe, accessed April 5, 2025, nevadacityrancheria.org; "Maidu," About Nevada County, accessed April 5, 2025, www.aboutnevadacounty.com/history/maidu; "United Auburn Indian Community," Wikipedia, last modified March 30, 2024, en.wikipedia.org/wiki/United_Auburn_Indian_Community; Colfax-Todds Valley Consolidated Tribe, "Our Mission," Colfax Rancheria, accessed April 5, 2025, colfaxrancheria.com

[44] California Executive Order N-82-20 (October 7, 2020), https://www.gov.ca.gov/wp-content/uploads/2020/10/10.07.2020-EO-N-82-20-signed.pdf

[45] U.S. Geological Survey, "Embers of Wisdom: The Yurok Tribe and USGS Partnership for Culturally Prescribed Fire," U.S. Department of the Interior, accessed April 5, 2025, www.usgs.gov/news/featured-story/embers-wisdom-yurok-tribe-and-usgs-partnership-culturally-prescribed-fire; Ashoka Mukpo, "Tribe and Partners Light up a Forest to Restore Landscape in California," Mongabay, November 16, 2022, news.mongabay.com/2022/11/tribe-and-partners-light-up-a-forest-to-restore-landscape-in-california/; Ecotrust, "Exploring Climate-Smart Forestry with the Hoopa Valley Tribe," Ecotrust.org, April 27, 2020, ecotrust.org/exploring-climate-smart-forestry-with-the-hoopa-valley-tribe/; "InterTribal Sinkyone Wilderness Council," Wikipedia, last modified April 3, 2024, en.wikipedia.org/wiki/InterTribal_Sinkyone_Wilderness_Council; "Esselen," Wikipedia, last modified March 29, 2024, en.wikipedia.org/wiki/Esselen.

3.8.5 Food Security Concerns

Rationale: Despite the fact that any significant correlation between food prices and biofuel production is unclear, claims that biofuel production has driven up food prices, taken food from communities or had a negative impact on land use can fuel public backlash. For example, the removal of biomass may raise public concerns relating to food security if Issuer feedstock requires the use of land that would otherwise be used for growing food.

Risk Information: Not relevant to this BDO Zone.

Raw Risk Likelihood (RRL) The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	**Score** **NR**
Raw Risk Impact (RRI) The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	**Score** **NR**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is not rated.	**Score** **NR**
Mitigation/Notching The Total Notch (RRL Notch) X (RRI Notch) is NR (Not Rated).	**Notch** **NR**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated.	**Score** **NR**

3.9 Risk Factor: Sustainability and Environmental Concern

3.9.1 Feedstock Sustainability

Rationale: Public concerns about the sustainability of feedstock production can jeopardize biomass feedstock operations. Sustainability certification schemes should be utilized where applicable to ensure that feedstock comes from sustainable sources.

Risk Information: The U.S. Forest Service planning process incorporates forest inventory, growth and yield projections, wildlife habitat assessments, and environmental impact evaluations under National Environmental Policy Act regulations. These processes ensure sustainable forest practices, which combined with a high growth to drain ration in the Supply Zone indicate a low risk to long-term feedstock sustainability.

Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed low, therefore the RRI is 4 out of 10.	**Score** **4**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**Score** **16**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**Score** **16**

3.9.2 Risk to Soil Quality

Rationale: Soil sustainability can be defined as the management of soil in a way that does not exert any negative or irreparable effects either on the soil itself or any other systems. There is a diversity of approaches to soil sustainability

in jurisdictional guidelines for forest biomass harvesting and production. For different feedstock types, there are also different thresholds at which feedstock removal causes significant negative consequences on the soil.
Poor soil quality that negatively impacts the long-term sustainability of the feedstock can entail long-term feedstock risk. Sub-optimal soil management can leave exposed soil post residue-harvest, which can lead to soil wash-off and soil carbon loss from precipitation and wind. Over-harvesting of biomass also depletes the carbon stock in the soil and creates a negative feedback loop that can degrade the soil and its nutrients.

Risk Information: Thinning and forest restoration operations in the region generally incorporate considerations for the forest ecosystem. Forest Residue removal typically achieves recovery rates below 60%, with the remaining material spread across harvesting sites to maintain soil nutrients and prevent erosion. These practices align with sustainable forestry principles and present low risk to soil quality. The established operational approaches appear sufficient to maintain soil productivity while allowing biomass recovery. The assessment indicates minimal likelihood of soil degradation from proposed biomass collection activities, with correspondingly low impact potential on long-term site productivity.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

3.9.3 Risk to Surface and Groundwater

Rationale: Excessive nutrient runoff from biomass feedstock production can accumulate in surface waters and result in algal blooms and hypoxia, which can lead to habitat loss for aquatic species higher up the food chain and alter aquatic ecosystem food webs. Damage to aquatic ecosystems can cause social and regulatory backlash. Water intake issues can also increase risk.

Risk Information: Local forestry companies demonstrate awareness of sensitive aquatic ecosystems and generally employ management practices designed to protect water resources. The industry's experience with sustainable harvesting techniques and regulatory compliance presents low risk of damage to aquatic ecosystems from biomass operations. Established best management practices appear adequate to maintain water quality while supporting biomass recovery activities. These protective measures include stream buffer zones, erosion control systems, and timing restrictions during sensitive hydrological periods. The assessment indicates minimal likelihood of water quality impacts from proposed biomass activities, with correspondingly low impact potential on aquatic resources.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**

Gross Risk Indicator (GRI)	Score
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

3.9.4 Risk to Hydrological Flux

Rationale: Biomass feedstock operations can have significant impacts on the hydrological flux (infiltration, groundwater recharge, interception, and transpiration) of ecosystems. This can lead to water shortages, lower yields, and backlash from regulatory bodies if management plans are not properly instituted.

Risk Information: Not relevant to this BDO Zone.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	NR
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	NR
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is not rated.	NR
Mitigation/Notching	**Notch**
The Total Notch (RRL Notch) X (RRI Notch) is NR (Not Rated).	NR
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated.	NR

3.9.5 Pesticide Risk to Human and Ecosystem Health

Rationale: Application of pesticides (i.e., herbicides, fungicides, and insecticides) on forest landscapes can result in adverse health effects for humans and ecosystems. If pesticide application is required in feedstock production, the impact must be considered in the BDO Zone rating.

Risk Information: Not relevant to this BDO Zone.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	NR
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	NR
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is not rated.	NR
Mitigation/Notching	**Notch**
The Total Notch (RRL Notch) X (RRI Notch) is NR (Not Rated).	NR
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated.	NR

3.9.6 Risk to Wildlife and Landscape

Rationale: Biomass production and supply chain operations with negative impacts on wildlife and landscape are at a greater long-term risk of encountering project setbacks and disruptions.

Risk Information: While timber harvesting, thinning, forest restoration operations, and residue removal create temporary disruptions, they typically do not affect the long-term viability of wildlife habitats when properly implemented. The U.S. Forest Service requires National Environmental Policy Act approvals for all activities in National Forests, with wildlife surveys and risk assessments as standard components of this process. These regulatory safeguards present low risk to wildlife and landscape values from biomass operations conducted in compliance with federal standards. The assessment indicates minimal likelihood of significant wildlife impacts from proposed biomass activities, with correspondingly low impact potential on ecosystem function or biodiversity. This assessment if further supported by the fact that wildfire fuel treatments directly benefit wildlife through wildfire mitigation.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

3.9.7 Biomass Classified as Genetically Modified Organism (GMO)

Rationale: There are various risks associated with GMOs, such as migration or dispersion across the landscape, which can generate community backlash and create supply chain risk. GMOs can also be heavily regulated. If planning to grow or procure GMO feedstocks, especially purpose-grown energy crops, it is important to understand the risks.

Risk Information: Not relevant to this BDO Zone.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	**NR**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	**NR**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is not rated.	**NR**
Mitigation/Notching	**Notch**
The Total Notch (RRL Notch) X (RRI Notch) is NR (Not Rated).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated.	**NR**

CATEGORY 4.0: FEEDSTOCK SCALE-UP

4.1 Risk Factor: Feedstock Scale-Up

4.1.1 Feedstock Quality at Production Scale

Rationale: The physical and chemical properties of feedstock used in lab, pilot, and field testing can fail to be representative of feedstock generated by large-scale operations.
It is important to conduct tests on feedstock representative of that which will be produced by large-scale operations. Failure to adequately test the full range of parameter values can result in severe problems during scale-up.

Risk Information: No significant risks associated with feedstock quality were identified for Pulpwood and Forest Residues if proper feedstock management practices are implemented. These include allowing Forest Residue to dry before comminution, reducing soil and rock contamination through proper handling, and careful piling/decking of residue. A quality control plan that incentivizes maintaining and improving feedstock quality is recommended, especially for feedstocks originating from salvage, wildfire remediation, and forest restoration activities, which tend to produce more heterogeneous products. These established quality management approaches present low risk regarding feedstock consistency at production scale, with minimal impact anticipated on conversion performance for new projects.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

4.1.2 Capacity of Supply Chain Components & Equipment to Scale

Rationale: Scale-up risk increases if supply chain components or underlying feedstock infrastructure necessary for these components cannot scale to handle Issuer feedstock requirements and throughput capacity. Capacity to scale should be demonstrated.

Risk Information: As described in Section B – Operational Considerations, the rated quantities could be produced and delivered with current harvesting, collection, pre-processing, and transportation capacities. Risk is deemed very low for the rated quantities.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch)	**NN**

No adjustment.

RRI Mitigation (Notch)
No adjustment.

The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).

Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

CATEGORY 5.0: INFRASTRUCTURE RISKS

Note: Unless infrastructure risks deviate from expected norms, whether positively or negatively, the risk score is 16 by default, equivalent to an 'A' rating.

5.1 Risk Factor: Physical Infrastructure

5.1.1 Land Parcel/Industrial District

Risk Information: The highlighted industrial site comprises 177 acres divided among 13 parcels, all owned by Sierra Pacific Industries (SPI). SPI closed this sawmill operation in 2009 and removed all equipment and buildings. The parcels are all zoned M-4 (Industrial Park), providing appropriate development classification for biomass operations. This brownfield site offers substantial development area with industrial zoning already in place, eliminating potential rezoning delays. The size, configuration, and industrial history of the property present low risk regarding site suitability, with low impact anticipated on development feasibility for new biomass projects.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

5.1.2 Ownership of Land

Risk Information: The Camino site is privately owned by Sierra Pacific Industries. Outreach conducted during the assessment indicated willingness to sell the property. This clear ownership structure and positive disposition toward property transfer reduce uncertainty regarding site acquisition. The established forest products industry relationship provides potential additional benefits regarding regional industry knowledge and supply chain connections. This ownership situation presents low risk regarding site availability, with minimal impact anticipated on project development timelines or acquisition costs.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**

Raw Risk Impact (RRI)	Score
The risk impact is deemed low, therefore the RRI is 4 out of 10.	4
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	16
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

5.1.3 Permitting Description

Risk Information: Environmental permitting in El Dorado County falls under county government oversight. For projects in California, particularly those potentially affecting air or water quality, the permitting process extends beyond county jurisdiction to State environmental regulatory frameworks. The California Environmental Quality Act (CEQA) requires extensive review to evaluate potential impacts on ecosystems, air and water quality, and community health. The site history of industrial use minimizes potential permitting complications compared to a greenfield development.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	6
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	6
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	36
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	36

5.1.4 Environmental Issues

Risk Information: The current property owners indicated an Indian burial site on the east side of the property. In 2019, a conditional No Further Action Determination was issued for this site by the Central Valley Regional Water Quality Control Board. The property is located in proximity to dense vegetation areas prone to wildfires. As part of wildfire prevention measures, utility companies in California impose Public Safety Power Shutoffs (PSPS) during high-risk fire weather conditions, which can disrupt operations. Additionally, El Dorado County is situated in a seismically active region. These site-specific environmental factors present low likelihood of development constraints but medium potential impact on operational reliability, resulting in a low-medium overall risk assessment.

Raw Risk Likelihood (RRL)	Score

The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**Score** **24**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**Score** **24**

5.2 Risk Factor: Utilities

5.2.1 Propane or Natural Gas Availability

Risk Information: With the exception of a portion of El Dorado Hills that borders Sacramento County, the entire western region is served by onsite propane. There are multiple propane service providers (e.g., JS West, 49'r, Suburban, Amerigas) operating in the El Dorado County as an open, competitive market for propane has been developed here. Moreover, the community bioeconomy project is envisioning meeting both heating and electricity demands by its own bioenergy plant. The risk is deemed low.

Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed low, therefore the RRI is 4 out of 10.	**Score** **4**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**Score** **16**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**Score** **16**

5.2.2 Electricity Availability

Risk Information: Pacific Gas & Electric (PG&E) serves as the primary electricity supplier in Camino. Industrial power rates from PG&E in the area average $0.33 per kWh,[46] significantly exceeding the national average of $0.22 per kWh. A new project proponent would need to invest in repairs and upgrades to the long-inactive Apple Hill substation to secure a minimum of 5 MW of power. While PG&E may share upgrade costs if projected power usage justifies the investment,

[46] www.energysage.com/local-data/electricity-cost/ca/el-dorado-county

this remains contingent on the operational scale and scope proposed. PG&E maintains acceptable reliability throughout central and northern California despite operating in wildfire-prone regions. However, wildfire-related power shutoffs during peak fire seasons present ongoing risk to industries with critical power requirements. Additionally, elevated maintenance costs associated with regional infrastructure contribute to higher electric rates. These factors present low likelihood of availability constraints but medium impact potential on operational costs, resulting in a low-medium overall risk assessment.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**24**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**24**

5.2.3 Water Availability

Risk Information: The Sierra Pacific Industries (SPI) site in Camino falls within El Dorado Irrigation District (EID) jurisdiction, which provides water to surrounding communities. EID sources the majority of its water from Jenkinson Lake (Sly Park) and processes it at the Reservoir A Water Treatment Plant near Pollock Pines before distribution. EID employs a tiered rate structure for residential water use, including a fixed monthly service charge and volume-based rates.[47] According to a 2020 regional rate comparison prepared by the Amador Water Agency,[48] the following rates applied for EID customers in areas including Camino and Cameron Park: Monthly Service Charge: $63.53, Usage Rates (per cubic foot): $0.015-$0.021. This established water utility service presents low risk regarding water availability and cost, with minimal impact anticipated on operational feasibility for new projects.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment.	**NN**

[47] El Dorado Irrigation District, "Billing Forms and Rates," El Dorado Irrigation District, accessed April 5, 2025, www.eid.org/customers/billing-forms-and-rates

[48] Amador Water Agency, Regional Water Rate Comparison – January 2020 (Sutter Creek, CA: Amador Water Agency, 2020), amadorwater.org/wp-content/uploads/2020/03/Regional-Water-Rate-Comparison-01-20.pdf

RRI Mitigation (Notch) No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100. **16**

5.2.4 Waste Disposal

Risk Information: The Camino site lacks connection to the municipal sewer system and operates with septic systems. The property maintains three independent septic systems, all reported to be functional. This arrangement supports basic wastewater management but may require evaluation for scalability depending on new industrial operation demands.

For solid waste disposal, the site benefits from proximity to a landfill and transfer station located in Camino, with additional landfill facilities available in Placerville, approximately eight miles away. The El Dorado Disposal offers commercial and industrial waste services in the area at an average cost of approximately $100/ ton.[49] This waste management infrastructure presents low risk regarding disposal services, with minimal impact anticipated on operational feasibility for new projects.

Raw Risk Likelihood (RRL) **Score** The risk likelihood is deemed low, therefore the RRL is 4 out of 10. **4**
Raw Risk Impact (RRI) **Score** The risk impact is deemed low, therefore the RRI is 4 out of 10. **4**
Gross Risk Indicator (GRI) **Score** The Gross Risk Indicator (RRL X RRI) is 16 out of 100. **16**
Mitigation/Notching **Notch** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100. **16**

5.2.5 Internet Availability

Risk Information: In Camino, several internet service providers offer various connectivity plans. Xfinity (Comcast) provides cable internet to 90% of Camino residents with download speeds reaching 1,300 Mbps at monthly rates up to $75.[50] This established broadband infrastructure supports standard industrial communication and data management requirements. The availability of reliable high-speed internet services presents low risk regarding connectivity, with minimal impact anticipated on operational capabilities for new projects in the BDO Zone.

Raw Risk Likelihood (RRL) **Score** The risk likelihood is deemed low, therefore the RRL is 4 out of 10. **4**
Raw Risk Impact (RRI) **Score**

[49] www.eldoradodisposal.com
[50] www.xfinity.com/digital/offers/plan-builder

The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**Score** **16**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**Score** **16**

5.3 Risk Factor: Transportation/Logistics

5.3.1 Road/Highway Access

Risk Information: The site is located less than a mile from US Highway 50, a key corridor connecting Sacramento and Lake Tahoe. This highway, predominantly four lanes, is well-maintained and receives priority for snow removal during winter months, ensuring year-round reliability for logistics. The proximity to Sacramento, only 50 miles west, further enhances logistical advantages. Sacramento offers access to Amtrak services, Class I railroads, and water freight facilities with connections to the Pacific. These factors collectively provide robust infrastructure for accessing Camino. The established transportation network presents low risk regarding road access, with minimal impact anticipated on logistics efficiency for new projects in the BDO Zone.

Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed low, therefore the RRI is 4 out of 10.	**Score** **4**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**Score** **16**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**Score** **16**

5.3.2 Rail Access

Risk Information: No rail connectivity exists at the site. The nearest rail loading facilities are located in Sacramento, approximately 50 miles away. These facilities are served by major rail operators, including Union Pacific (UP), Burlington Northern Santa Fe (BNSF), and Amtrak, providing freight connections to key destinations such as Salt Lake City, Denver, Las Vegas, and Seattle.

In the context of a community-scale biomass project, which would likely not need access to rail for product export, this risk indicator is deemed irrelevant.
Raw Risk Likelihood (RRL) **Score** The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR). **NR**
Raw Risk Impact (RRI) **Score** The risk impact is deemed not relevant, therefore the RRI is not rated (NR). **NR**
Gross Risk Indicator (GRI) **Score** The Gross Risk Indicator (RRL X RRI) is not rated. **NR**
Mitigation/Notching **Notch** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated. **NR**

5.3.3 Airport Access

Risk Information: Placerville Airport is located 5 miles east of the Camino industrial site. This general aviation facility sits at 2,585 feet elevation and features a lighted 4,200-foot asphalt runway. Two fixed base operators provide AvGas, Jet A fuel, and Enterprise Rental car services. Sacramento International Airport is situated 33 miles from the site with comprehensive passenger and freight services. This aviation infrastructure presents low risk regarding air transportation access, with minimal impact anticipated on personnel transportation or emergency access for new projects in the BDO Zone.
Raw Risk Likelihood (RRL) **Score** The risk likelihood is deemed low, therefore the RRL is 4 out of 10. **4**
Raw Risk Impact (RRI) **Score** The risk impact is deemed low, therefore the RRI is 4 out of 10. **4**
Gross Risk Indicator (GRI) **Score** The Gross Risk Indicator (RRL X RRI) is 16 out of 100. **16**
Mitigation/Notching **Notch** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100. **16**

5.3.4 Water Freight Access

Risk Information: The Port of Sacramento is located approximately 33 miles from the site. In the context of a community-scale biomass project, which would likely not need access to rail for product export, this risk indicator is deemed irrelevant.

Raw Risk Likelihood (RRL) The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	**Score** **4**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is not rated.	**Score** **16**
Mitigation/Notching The Total Notch (RRL Notch) X (RRI Notch) is NR (Not Rated).	**Notch** **NR**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated.	**Score** **16**

5.4 Risk Factor: Social Infrastructure

5.4.1 Healthcare (Local)

Risk Information: Within Camino, the Camino Family Medical Center serves as a primary care clinic, offering walk-in and emergency services for non-critical medical needs. Ambulance services for Camino are available from Placerville, eight miles west. For more comprehensive medical care, Barton Memorial Hospital in South Lake Tahoe, approximately 50 miles east, is a 110-bed full-service medical center providing surgical services, long-term care, and specialized treatments, ensuring access to higher-level care for Camino residents. While the distance to larger medical facilities could present challenges in emergencies, the presence of local primary care options helps mitigate this risk. This healthcare infrastructure presents low likelihood of service limitations but medium impact potential during emergency situations, resulting in a low-medium overall risk assessment.

Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**Score** **24**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**Score** **24**

5.4.2 Education (Schools)

Risk Information: Camino provides primary and secondary education through local school districts, while post-secondary opportunities are available in nearby cities and counties. Camino, California, is served by the Camino Union Elementary School District, which provides education for students from kindergarten through eighth grade. The district comprises a single school, Camino Union Elementary, with an enrollment of approximately 400 students.[51] Camino does

[51] National Center for Education Statistics, Camino Union Elementary School District Profile, accessed February 24, 2025, nces.ed.gov/ccd/districtsearch/district_detail.asp?DistrictID=0607170

not have a high school, so students attend nearby high schools within the El Dorado Union High School District. Options include El Dorado High School (Placerville), Ponderosa High School (Shingle Springs), and Union Mine High School (Diamond Springs).[52]

For higher education and vocational training, Folsom Lake College is 25 miles from Camino and offers associate degrees, certification programs, and strong university transfer opportunities.[53] California State University (Sacramento State), University of the Pacific (Stockton, CA) and University of California, Davis (US Davis) are both four-year accredited institutions providing degrees in agriculture, forestry and professional programs.[54]

While Camino, CA, does not have dedicated forestry education programs, residents have access to several nearby institutions and training programs that offer degrees, certifications, and hands-on learning experiences in forestry and natural resource management: Lake Tahoe Community College (LTCC), Forestry Education and Job Placement Program,[55] and California Conservation Corps, Forestry Corps.[56]

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

5.4.3 Local Transportation

Risk Information: El Dorado Transit[57] provides scheduled commuter bus services for $1.50 per trip for Camino with reliable service between Lake Tahoe and Sacramento. The connection to light rail in the Sacramento area allows employees to live farther from Camino with minimal commuting challenges. This public transportation network supports workforce mobility across the region, reducing dependence on personal vehicles for commuting. The established transit infrastructure presents low risk regarding employee transportation, with minimal impact anticipated on workforce accessibility for new projects in the BDO Zone.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**

[52] El Dorado Union High School District, School Directory, accessed February 24, 2025, www.eduhsd.k12.ca.us
[53] Sierra College, About Sierra College, accessed February 24, 2025, www.sierracollege.edu
[54] University of California, Davis, UC Davis Academics and Research, accessed February 24, 2025, www.ucdavis.edu
[55] Lake Tahoe Community College, Forestry Education and Job Placement Program, accessed February 24, 2025, www.ltcc.edu/academics/academic_programs/forestry.php
[56] California Conservation Corps, Forestry Corps Program, accessed February 24, 2025, ccc.ca.gov/what-we-do/conservation-programs/forest-health/forestry-corps/
[57] eldoradotransit.com

Raw Risk Impact (RRI)	Score
The risk impact is deemed low, therefore the RRI is 4 out of 10.	4
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	16
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

5.4.4 Public Safety (Local)

Risk Information: Camino, California, is served by the El Dorado County Sheriff's Office and demonstrates relatively low crime rates compared to national averages. The violent crime rate in Camino is approximately 16.7 per 1,000 residents, significantly below the U.S. average of 22.7.[58] Property crime rates are slightly higher, with a rate of 32.9 per 1,000 residents compared to the national average of 35.4. Camino received a B grade for safety, indicating crime rates slightly below the average U.S. city. Camino ranks in the 63rd percentile for safety, meaning it is safer than 63% of cities but less safe than 37%.[59] This public safety environment presents low risk regarding security concerns, with minimal impact anticipated on operations or workforce retention for new projects in the BDO Zone.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	4
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	4
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	16
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

5.4.5 Housing/Cost of Living

Risk Information: Camino and El Dorado County overall exhibit high living costs, primarily due to elevated housing, utilities, and transportation expenses. However, income levels and job opportunities may not consistently match these costs, making affordability a key concern for new residents. The cost of living is approximately 41% higher than the

[58] www.bestplaces.net/crime/city/california/camino?utm_source=chatgpt.com
[59] crimegrade.org/safest-places-in-camino-ca/

national average.[60] The median home price in Camino is $740,222, significantly above the national median, while median rent reaches $2,250 per month.[61] Both Camino and El Dorado County have experienced declining median sale prices over the past year, suggesting a cooling housing market. However, Camino offers a lower-cost alternative to El Dorado Hills and other expensive areas of El Dorado County, particularly for homebuyers. These housing market conditions present medium risk regarding workforce recruitment and retention, with corresponding impact on labor availability and cost for new projects in the BDO Zone.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**36**

5.5 Risk Factor: Labor

5.5.1 Workforce

Risk Information: Camino, CA has experienced a 6.27% decline in employment between 2022 and 2023, with employed individuals decreasing from 830 to 778. Leading industries for local employment include Health Care & Social Assistance, Finance & Insurance, and Construction. Common occupations involve Management, Computer & Mathematical fields, and Construction & Extraction.[62] Most of the workforce is white-collar (82.41%), with the majority employed by private companies (69.23%), while others work in government (19.71%) or are self-employed (7.8%).[63] These labor market trends trigger medium risk regarding workforce availability, particularly for specialized biomass operations requiring industry-specific skills and experience. The declining employment trend introduces uncertainty regarding labor accessibility and recruitment efficiency for new projects.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch)	**NN**

[60] Camino, CA Cost of Living, AreaVibes, accessed February 24, 2025, www.areavibes.com/camino-ca/cost-of-living/
[61] Camino, CA Cost of Living Calculator, PayScale, accessed February 24, 2025, www.payscale.com/cost-of-living-calculator/California-Camino
[62] Data USA, "Camino, CA," Data USA, accessed April 5, 2025, datausa.io/profile/geo/camino-ca
[63] Point2Homes, "Camino, CA Demographics," Point2Homes, accessed April 5, 2025, www.point2homes.com/US/Neighborhood/CA/Camino-Demographics.html.

No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100. — **36**

5.5.2 Labor Costs

Risk Information: The median household income in Camino is approximately $109,917, notably higher than state and national averages.[64] A family in Camino requires an estimated $98,280 per year to live comfortably, while a single individual needs approximately $54,400 annually.[65] As of 2025, the average wage in Camino, CA, is approximately $20.46 per hour, which translates to an annual salary of about $42,548.[66] These values place Camino and El Dorado County among regions with relatively higher entry-level labor costs, which can impact labor-intensive industries.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**36**

[64] AreaVibes, "Camino, CA Employment," AreaVibes, accessed April 5, 2025, www.areavibes.com/camino-ca/employment/
[65] Camino, CA Cost of Living Data, BestPlaces, accessed February 24, 2025, www.bestplaces.net/cost_of_living/zip-code/california/camino/95709
[66] ZipRecruiter, "Average Salary in Camino, CA," ZipRecruiter, accessed April 5, 2025, www.ziprecruiter.com/Salaries/-in-Camino%2CCA

SECTION E: TABLES AND FIGURES

Figure E-1. Merchantable Biomass of All Live Trees in the Supply Zone (2019-2021)[67]

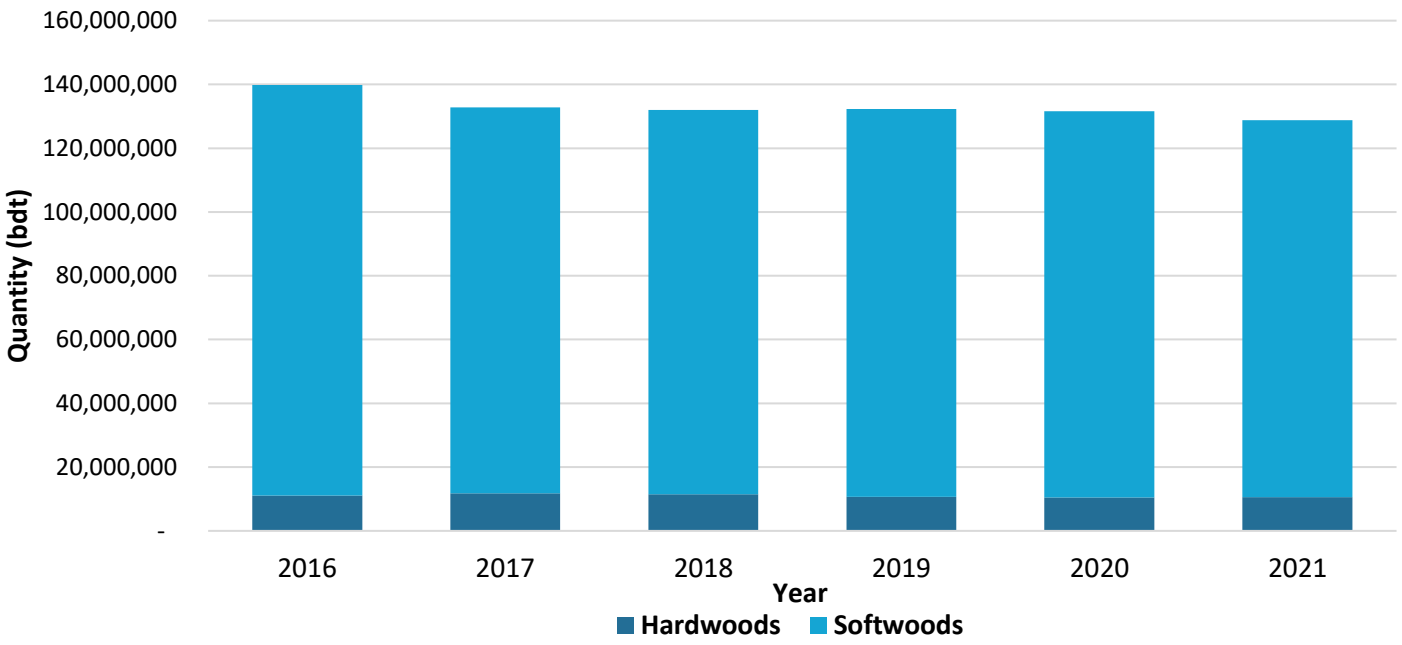
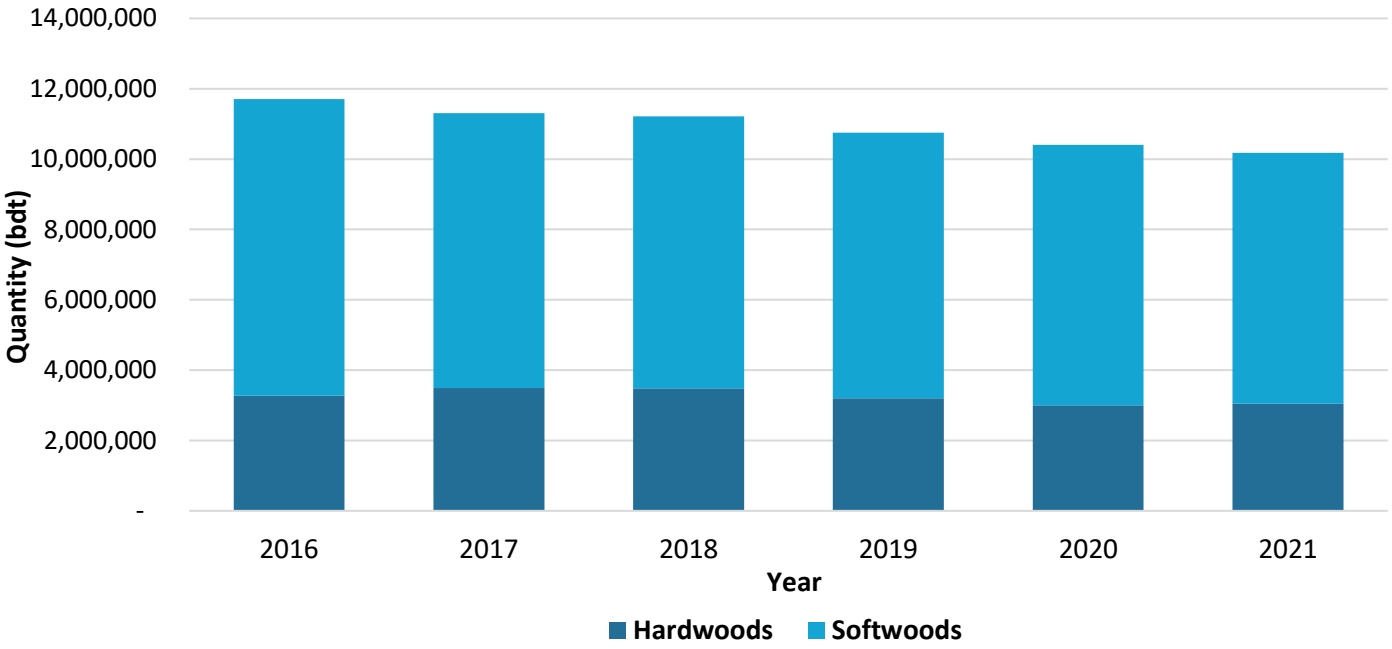


Figure E-2: Merchantable Biomass of Live Pulpwood Size Trees in the Supply Zone (2013-2021)[68]



[67] apps.fs.usda.gov/fiadb-api/evalidator. Variable 12000: Merchantable bole bark and wood biomass of live trees (timber species at least 5 inches d.b.h.), in dry short tons, on timberland
[68] Ibid.

Figure E-3. Percent Merchantable Biomass of Standing Live Trees by Ownership[69]

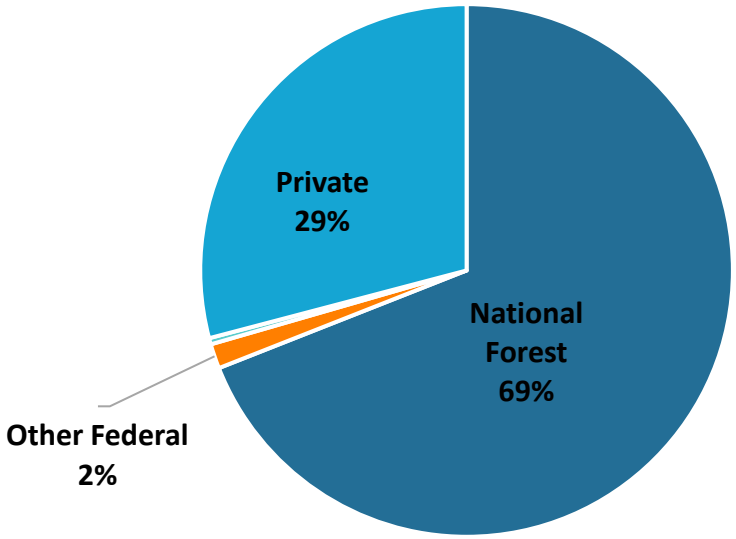
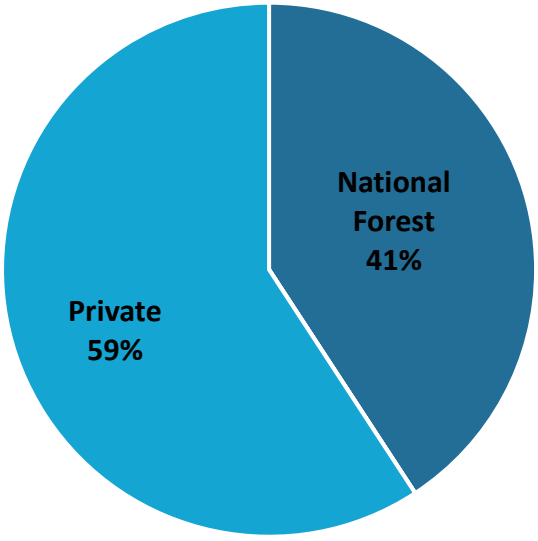


Figure E-4. Percent Timber Removal by Ownership[70]



[69] Ibid.
[70] Ibid.

Figure E-5. Percent Timberland Area by Ownership [71]

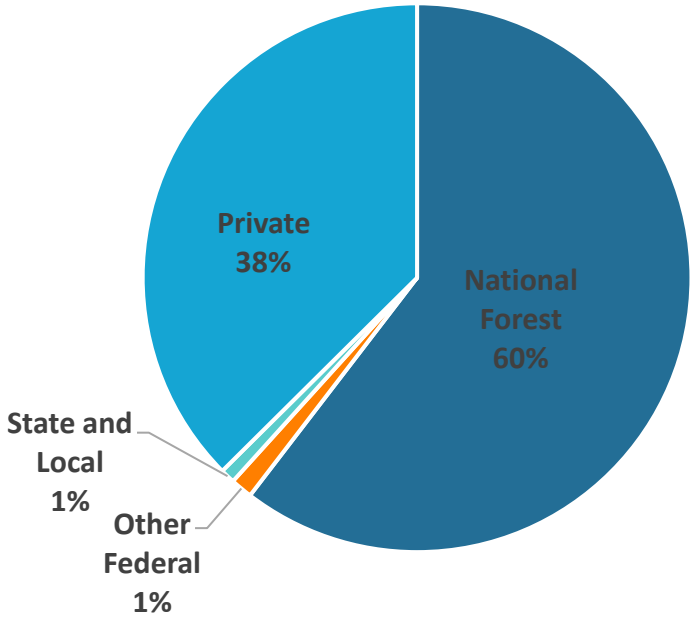
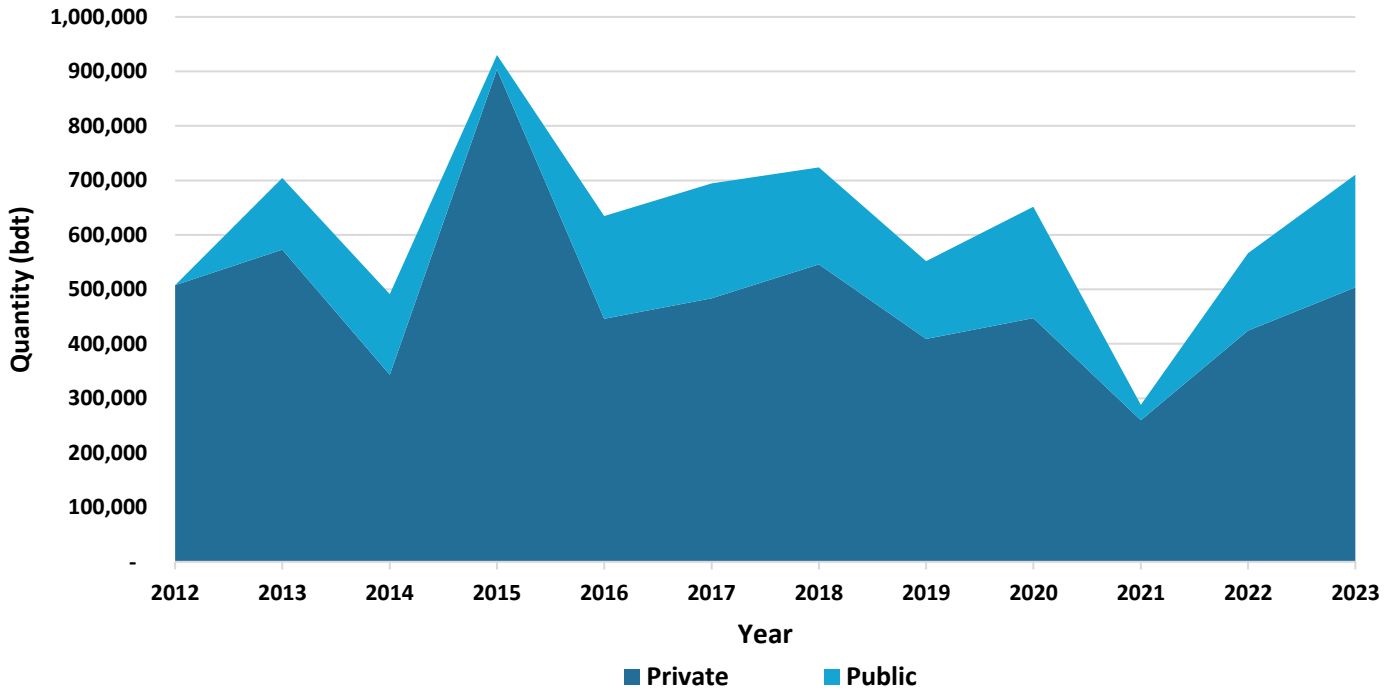
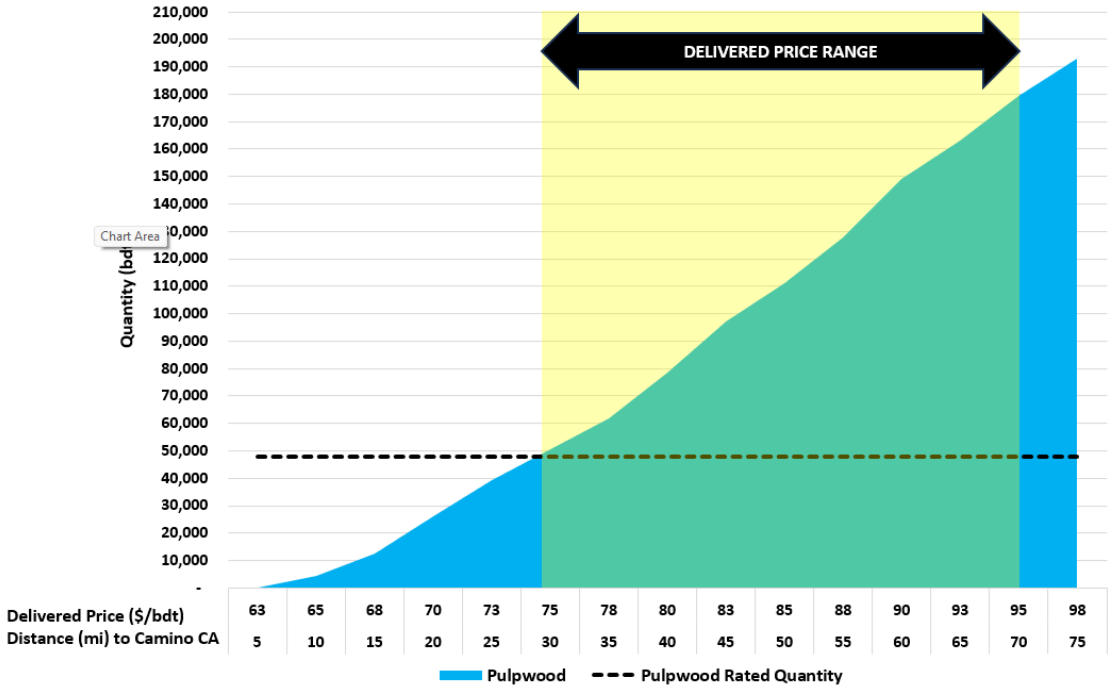


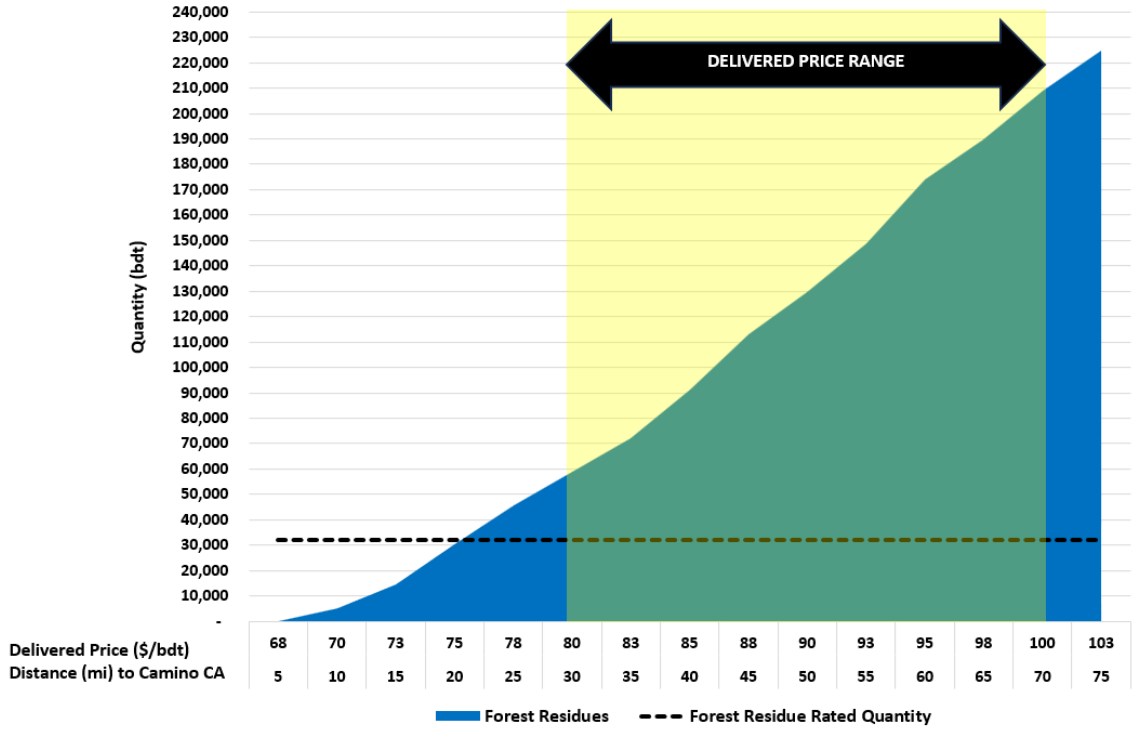
Figure E-6. Historical Harvest in the Supply Zone[72]



[71] Ibid.
[72] www.cdtfa.ca.gov/dataportal/dataset.htm?url=PropTaxTimberProductionStats

Figure E-7. Supply/Marginal Cost Curves for Pulpwood (top) and Forest Residues (bottom) Generated in the Supply Zone[73]





[73] apps.fs.usda.gov/fiadb-api/evalidator

Figure E-8. Transportation Costs ($/bdt) by Distance from Camino, CA[74]

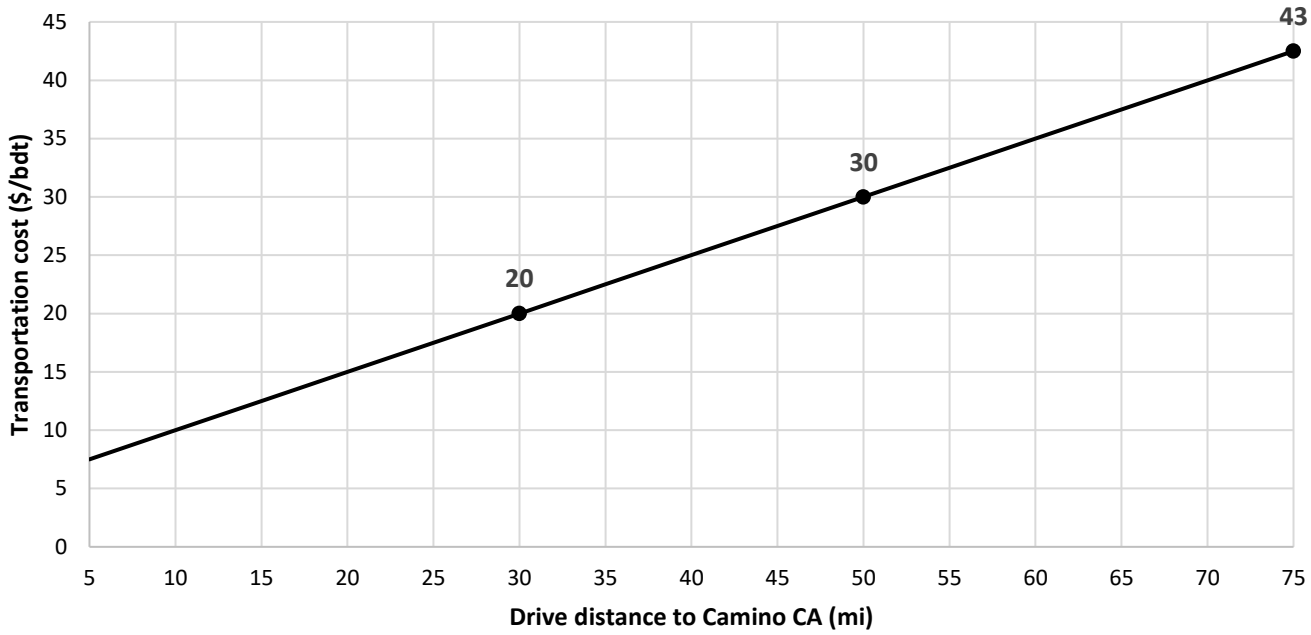
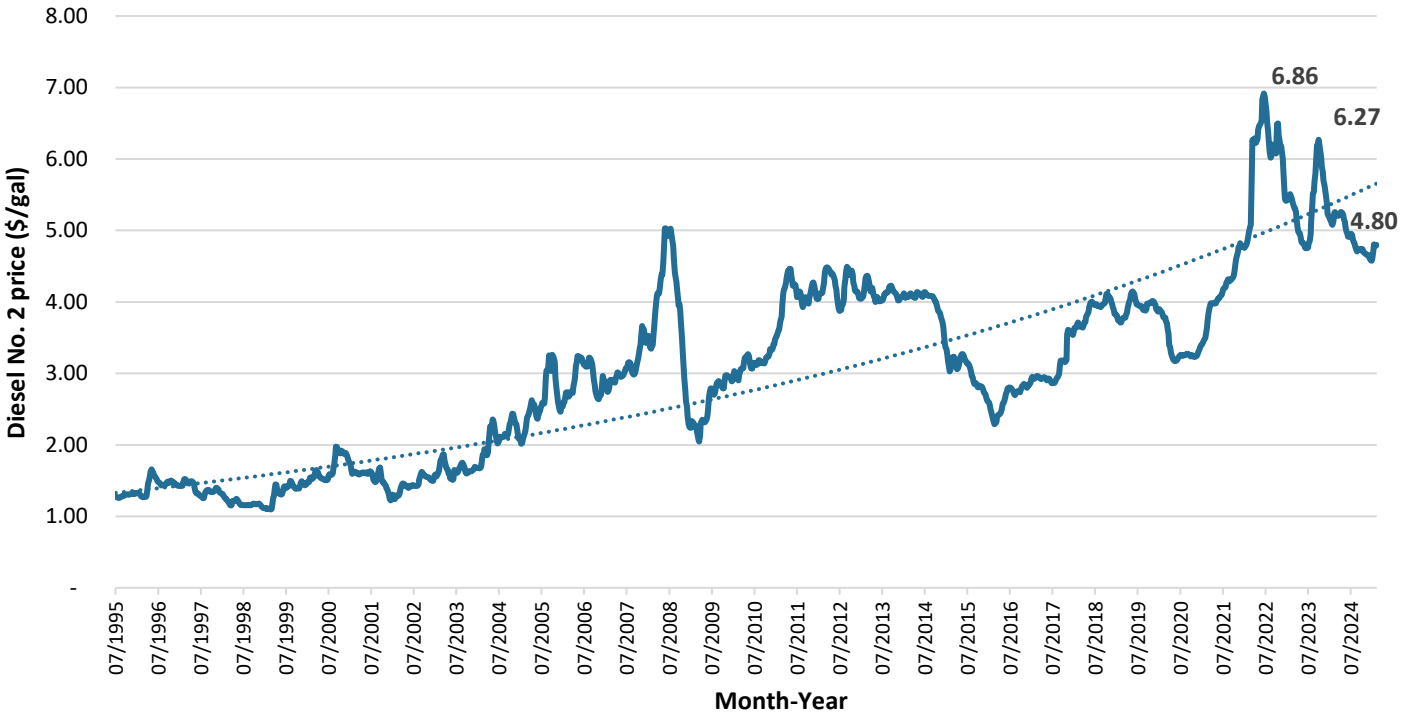
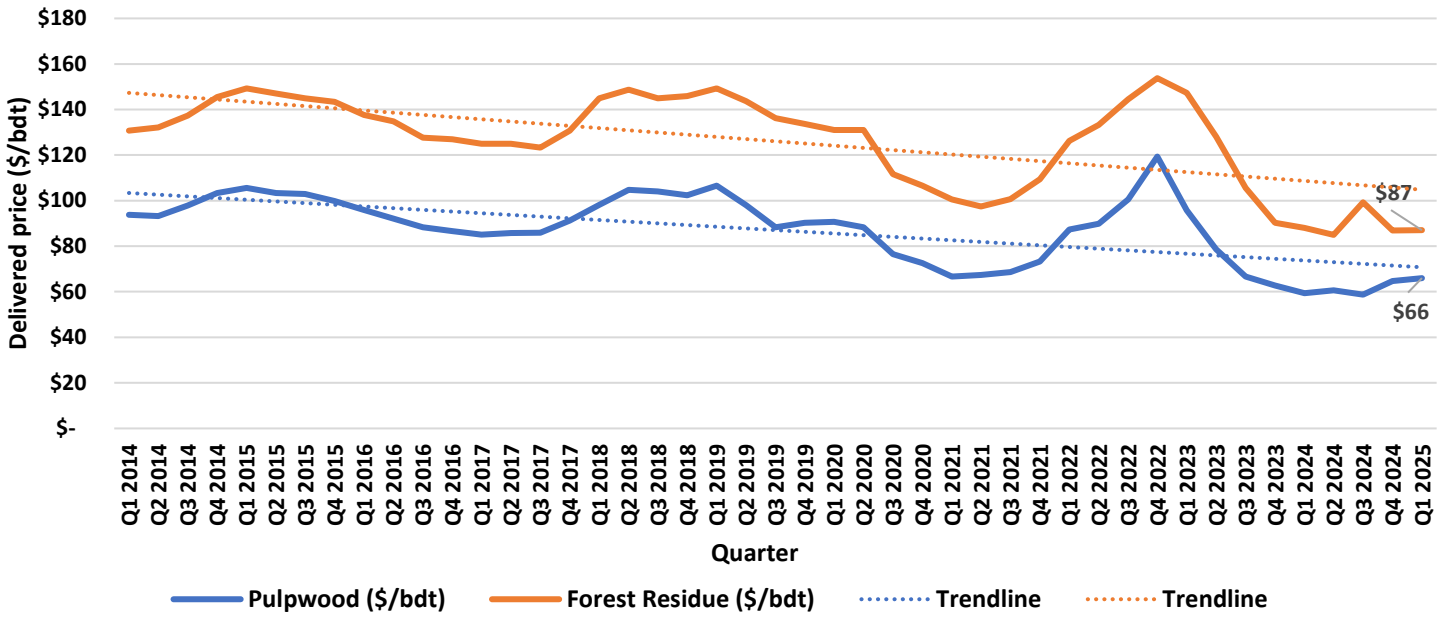


Figure E-9. Historical Diesel Prices ($/gal) and Trendline in California (1995-2025)[75]



[74] Based on a trucking rate of $140/hr (outreach to local forestry professionals)
[75] https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_sca_w.htm

Figure E-10. Pulpwood and Forest Residue Market Prices (Forisk 2044-25 Reports, Pacific Northwest)



Map E-1. El Dorado, CA Proposed Industrial Site



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